PLO evacuation from

3-40 TONNE VANS & TRUCKS

ENERAL

Hopes of inding scientists ade

The British Antarctic Survey id: "The chances of finding tem are now extremely slim." They are John Coll. 23, a iesel mechanic from Glasgow, mbrose Morgan, 22, a radio perator from Petersfield, Hants, nd Kevin Ockleton 22, a physi-ist from Keyingham, near Hull.

Pretoria inquiry

retoria ordered an inquiry Into imbabwe Prime Minister obert Mugabe's claim that outh African soldiers had set p a base in bis country.

Kenyan security ecurity forces after the abor-ive August 1 military coup. age 2

Dublin protest

Jublin protested to Britain bout shots fired from a Royal vavy launch at a vacht with ight children aboard that reused to stop in an inlet traddling the border with ilster last week.

Mercenary claim

The Defence Ministry rejected eports that U.S. mercenaries ought with Argentine troops in he Falklands, saving there may ave been American-speaking oldiers.

Fires still blazing hree forest fires that ravaged.

7,000 aeres near St Tropez, outhern France, since Saturday Seychelles flights

3ritisb holldaymakers stranded

n the Seychelles by the recent coup attempt are due home oday after the resumption of scheduled flights.

Scillies air link The Trade Department gave

280,000 to the Scilly Isles counail to take over the airport and save the air link with Cornwall,

Festival closed

Organisers asked Los Angeles olice to close a festival at Watts, a black suhurb where 35 died in rioting in 1965, follow-ing looting and fighting.

Child 'protection'

Tory MP Geoffrey Dickens plans to introduce a Bill to protect children by nanning organisations such as the Paedophila

Prom-otion

Seaside resorts, hit by the recession and changing holiday patterns, are to sell themselves through travel agents next year.

Briefly. . . . Lord Sbinwell, 97, was under observation in a London hospital's coronary unit.

The Voice, a weekly London newspaper for blacks, will go on sale at the Notting Hill Carnival on Augus, 26. Page 5 Vaccines against pasturella, the. main killer disease of sheep. were leunebed by Hoechst.

British Medical Association meets in Worcester on Septem-ber 9-11 to celebrale its 150th anniversary.

India's Prime Minister Indira Page 14 Gandhi starts a five-day tour of FORKER, Dutch aerospace Mauritius and Mozambique

King Sobhuza of Swaziland died

Page 14 CONTENTS

prepare for battle 11 sion's effect on employee Tourism: why we don't like consultation 8 to be beside the seaside 5 U.S. economy: a taxing on conditions for lenders 11 10 victory for Reagan ... Editorial comment: Middle East—a chance for U.S. diplomacy; dumb insolence Eurobonds: prices and

Crossword Entertain. Guide ... Financial Diary

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RUSINESS

Schmidt warns of trade war

r three British scientists misng in the Antarctic had to he
ancelled yesterday for the
coold lead to a trade war, recond day running because of
ad weather.

WEST GENERAL Consents to the
that U.S.-Europe trade disputes
coold lead to a trade war, returning the West to the conditions of the 1930s. Back Page

• IMF advances outstanding rose by a third and its opera-aional income doubled in the year to April 30. Page 2

 BANK OF FRANCE sold D-marks on Friday as part of its measures to prop up the weakening franc. The French currency remained comfortably laced around the middle of the European Monetary System, but came under renewed pressure from Thursday onwards on rumours of possible withdrawal from the system. In forward trading, the franc weakened sharply and Eurofranc interest tenya's President Daniel arap for moved to reorganise the ecurity forces after the above sharply, and the Belgian National Bank took advantage

EMS AUG. 20, 1982

ECU DIVERGENCE

CIVIL SERVANTS' strike

last year is still costing £4m

quired hecause some tax has

a week for extra horrowing re-

not been collected. Back Page

• NATIONAL SAVINGS is

falling well behind its target of

a £3hn contribution to Treasury

funding in 1983/83. Page 4

• LOW STOCK LEVELS could

endanger a UK economic re-covery by creating opportuni-

ties for importers, said the

Fraser of Allander Institute.

• BRITISH STEEL is to lay

off 5,500 at its Welsh tinplate mills, and Dunlop is laying off 3,000 for a week at its Port Dunlop tyre factory near

• HEALTH UNION Cohse will

meet this week to discuss recal-

ling its annual conference to

endorse an escalation of the

8 IBM's Greenock, Renfrew-

shire, plant might be chosen to

huild the company's new Per-

• BELL CANADA, telecom-

munications coocern, sald it would proceed with its re-organisation plans in spite of a

company, net profits edged for-

ward to Fl 6m (£1.27m) from

call for a public inquiry.

Fl 5.84m in the first half.

Birmingbam. Back Page

pay dispute. Page 5

sonal Computer. Page 4

"revolution until victory."
Of these, 265 were transported by air to Jordan, where of the relative stability of the Belgian franc to cut its discount

Beirut resumes after blockade 'hitch' BY PATRICK COCKBURN IN JERUSALEM AND REGINALD DALE IN WASHINGTON THE EVACUATION of members of the Palestine Liberation

Organisation from Beirut resumed last night after several tense hours in which Israeli gunboats blockaded the harbour.
The vessels stopped the departure of a ship carrying more than 1,000 PLO men to

The Israelis said the PLO had loaded 18 jeeps onto the ship, contrary to the terms of the evacuation plan drawn up by Mr Philip Habib, the U.S. special envoy. This specifies that the PLO can take only personal weapons such as rifles and aub-

machine guns. Israel Radio reported that the olockade had been lifted following assurances from the U.S. that the jeeps would be in-loaded hefore the guerrillas reached their final destination,

Before the hold-up about 400 guerrillas, the first batch of evacuees, bad arrived by boat t Laroaca, in Cyprus, waving rifles, Palestinian flags, and pictures of Mr Yasser Arafat, the PLO leader, and chanting

they were met personally hy King Hussein. The remainder. members of the Iraql-backed Arab Liberation Front, flew to

by emotional scenes and the deafening sound of continuous firing in the air to mark the occasion-a tradilional way of

marking grief or celebration.
The U.S. reacted calmly to the bold-up in the evacuation. In Washington, Mr Caspar Weinherger, the U.S. Defence Secretary, described the problem as 'a little hitch," a sort of lawyers' dispute

lawyers' dispute. Mr Weinberger said that the Israelis had "no hasic right" under the evacuation agreement to block the ship's departure. The port area was meant to be in the bands of the French peace-keeping force, he said.
. The problem was that Jeeps

were not specifically mentioned in the evacuation agreement. Mr Weinberger said: The PLO interpreted this to mean that they could take them, the Israelis that they could not.

In spite of last night's resump tion of the evacuation, the whole exercise remains fraught with difficulties and mistrust. Israel suffered casualties in guerrilla ambushes over the weekend. In addition, there were signs yesterday of tension rising be-tween Israel and Syria.

There are about 30,000 Syrian troops stationed in the Bekaa Valley as part of the Arab Deterrent Force.

The worrying aspect of the ceasefire violations over the Baghdad, weekend is that they were not The evacuation was marked confined only to areas under weekend is that they were not

Syrian control, An Israeli aoldier wounded in a clash with the PLO on Saturday died yesterday and three members of a PLO squad were killed in a aeparate incident east of

In adition, five Israeli soldiers were wounded in an ambush north of the port of Tyre, just over 40 miles south of Beirut late yesterday after-

Israel is extremely worried by guerrilla attacks by units of the PLO operating from behind Syrian lines, an Israeli spokesman said yesterday. Further attacks are likely to lead 10 heavy retaliation by the Israelis

against the Syrians.

The ioability of the Lehanese army to identify all the PLO membera leaving Beirut seems to be causing the government in Jerusalem less concern, although it has protested at this violation of the terms of the evacuation plan to Mr. Habib evacuation plan to Mr Habib.

The Israells say the Syrians are heavily reinforcing their troops in the Bekaa where about 7.000 PLO troops are also stationed.

Meanwhile, Cabinet said yesterday that it will soon produce a scheme for general Middle East peace, but will not examine anything which deviates from the Camp Details, Page 2

IMF expansion warning after 'troublesome' year

BY REGINALD DALE, U.S. EDITOR IN WASHINGTON

WCRLD ECONOMIC develop- Important problems in the substantial shifts in the same ments over the past year have industrial countries include direction were in progress dur-remained troublesome in spite "various rigidities and structing the first half of 1982. of signs of progress in the fight tural imbalances that have David Tonge writes: last inflation, the International Monetary Fund says in its annual report, published oday.

The chart shows the two constraints on European Monetary System exchange rates. The upper grid based on the weakest currency in the system defines the cross rates from which no currency (except the hie) may move more than 2% for cent. The lover chart gives each currency's divergence from the "central rate" against the European Currency Unix (ECU) itself a basket of European currencies. Among the many major problems, the fund cites low or negative growth rates, inflation that is still too high in most countries, increasing unemployment, the extremely slow growth of world trade and volatile interest and exchange rales in the industrial countries. The fund warns slernly of the

dangers of protectionism and of governments shifting too soon to expansionary fiscal and monetary policies. It is worried by the way increasing social and political strains stemming from unemployment are creating pressure for a relaxation of

restrictive, and financial policies. anti - inflationary It adds that the threat of protectionism is also increasing as a result of weak demand and high unemployment in the industrial countries. The prob-lem requires "the utmost vigilance and prudence in government actions" if serious consequences for the growth of

world trade are to be averted. Weak demand in the industrial countries has also had a negative impact on prices of primary commodities and hence on the export earnings of many developing countries. Impairment of the international purchasing power of these countries, in turn, has contrihuted further to the slowdown

become embedded in the economic system," the fund says. Examples are to be found in vage bargaioing and price setting, government subsidies or protection of ailing industries. the imposition of governmental regulatory burdens and in struc-

tural unemployment. Rigidity in government spending and taxation has resulted in large budget deficits. These bave had advecse direct effects on prices and costs, hindered straint and forced interest rates

The fund calla for comprehensive policies to control the growth of nominal demand and eliminate these rigidities, hacked up in some cases hy or informal incomes policies

The industrial countries are stalled in a long period of slow growth in output and demand. the report says. Their average real increase in gross national product was only about 1.25 per cent a year in 1980 and 1981, compared with 4 per cent he-tween 1977 and 1979—and 1982 is shaping up as another weak year

The current account surplus of the oil exporting countries fell sharply from \$116bn (£68bn) in 1980 to \$69bn last year, while the industrial countries' deficit was reduced hy \$40bn to about \$4bn, excluding official transfers.

The fund says that further

IMF's altempts to build up the credibility of its paper money, the Special Drawing Right, By the end of 1981 about SDR 5bn (£4.6hn) was on deposit in SDR denominated accounts, SDR cer tificates of deposit were being traded with some SDR 700m issued, and SDR 2bn of SDR-denominated loans were outstanding, according to the IMF's annual report. Development of the asset had

heen helped by the IMF's end of 1980 move restricting the SDR's curency basket to the D-mark, French franc, Japanese yen, pound sterling and U.S.

This year the continuing strength of the dollar has caused investors to lose considerable interest in the SDR, a point not covered by the IMF. However, the fund'a report does produce calculations designed to show how over the long term the against currency fluctuations.
It calculates that hetween June 1973, before the first oil sbock, and March this year a existed-would have appreciated hy exactly the same amount as

holding in SDRs-had a holding in short-term U.S. treasury honds. By contrast, investors in sterling and francs would have done better if they had chosen SDRs, while those of Japanese yen and D-marks would have done slightly worse. Lomhard, Page 11

Civil Service strike still hurting

BY MAX WILKINSON, ECONOMICS CORRESPONDENT

year ago, is still more than £4m payments. The cost is thought to a week for the extra loans required to make up for un- rate. collected taxes.

There are now fears in sum might bave to be written departments for failing to be off altogether. According to the latest Treasury estimate, the extra

interest payments resulting from the five-month dispute reached £550m by the end of June—the same as the cost of the Falklands conflict in the current year.

tax, value-added tax and national insurance contributions outstanding from the time of the dispute had still not been collected. Although the Inland Revenue servants.

Departments have said they expect eventually to collect most of the backlog, a substantial proportion remains unpaid. The Treasury estimates that. the three months to June.

and the Customs and Excise

THE COST of the civil servants' because of the non-payment of There is a similar problem at strikes in 1981, which ended a these taxes cost £50m in interest the Customs and Excise Departbe continuing at about the same

Whitehall that a substantial MPs criticised the tax-collecting salaries by rooting out tax sum might baye to be written departments for failing to be evasion. Each Inland Revenue vigorous enough in seeking the lost revenues. However, the Issue is complicated by a fierce argument

between the Inland Revenue and the Treasury about the need for extra investigators to catch people who are evading tax. The Revenue claims that it

At the time of the last Budget needs more than the 1.870 offiit was estimated that between cials investigating cases of f1.25bn and f1.5bn of income suspected evasion. But the Treasury bas told the Revenue that Government will not authorise more collectors while hig efforts are being made to reduce the number of civil

The Revenue has been told that it must find any extra iovestigators from among its present staff. But this has been made more difficult hecause civil servants are still trying to that extra inspectors would pay identify taxes not paid as a for themselves in an economic the extra dorrowing required result of their strikes last year. sense, the Treasury helieves.

ment, which collects value-added

Both departments say that This month, the all-party extra investigators would bring Public Accounts Committee of in more than the cost of their investigator for example, produced last year an average of £92,000 in revenue which would otherwise have been

The departments bave gained the support of MPs on the Public Accounts Committee for their case for more staff, but the Government is not likely to give way. In addition to the overall constraint on Civil Service numbers, there is the general Conservative anxiety about employing too many "tax

snoopers." Moreover, Treasury argues that, although it is desirable to stamp out tax evasion, the extra revenue yielded through special investigators does not represent the creation of new wealth in the economy. It cannot he argued

Vatican to resist claims on its funds

By Rupert Cornwell in Rome

THE VATICAN has indicated that it will resist demands by the Italian authorities that it should cover fully more than \$1.2bn (£700m) of loans issued by the collapsed Banco Ambrosiano group to Panes Ambrostano group to Panama-based companies, on the strength of letters of patronage issued by the istituto per le Opere di Religione (10R), the bank of the Holy See.

This first public pointer to

the Vatican's attitude to the Ambrosiano scandal comes from Cardinal Agostino Casaroll, the Vatican's Secre-tary of State, in an interview

in the forthcoming issue of the magazine L'Espresse. The controversy over relations between the now liquidated Banco Amhrosiano and the IOR hinges on the nature of the guarantees represented by a letter of patronage. Failure to recover the Panamanian loans lay bebind Ambroslano's collapse.

According to experts, said Cardinal Casaroll, "the tone of these letters, which are part of standard hanking practice, is such as not necessarily to imply a full obligation. I think there are limits to the commitment many people think the letters

The whole question is being examined by the team of three appointed by the cardinal in mid-July, Their report, be says, will be ready before the antumn." Cardinal Casaroli claimed that the total snm

involved was less than \$1.2hn.
"From what has emerged so far, this figure includes earlier operations which had nothing to do with the IOR," he said. Vatican officials bave stoutly maintained in recent days that if the Holy See has made mistakes in the affair these have

heen dne to oversight and inexperience, and are not the This seems to amount to a rebuke for Arcbbisbop Panl Marclakus, the IOR's president for the past 11 years. Relations between the secretary of state and the Chicago-born archhisbop are said to be not

Last month the Vatican rejected procednral gronuds indicial communications sent by Milan magistrates probing the Amhrosiano case to Archbishop Marcinkus and two other top-

IOR executives. The hearing to examine the Bank of Italy's petition to have Banco Ambrosiano SpA formally declared bankrupt resumes in Milan today.

French 'threat' to requisition work on pipeline

BY DAVID WHITE IN PARIS

THE FRENCH Government is understood to have threatened to requisition the services of Dresser-France, if it fails to fulfil its share of a contract to supply equipment for the gas pipeline to be built between Siberia and western Europe.

The heavy engineering com-pany, a subsidiary of Dresser Industries of the U.S., is to send its firat compressor to the Soviet Union this week.

What was alleged to be a confidential telegram, containing the threat, was published in Paris newspapers at the weekend.

The French Foreign Minis-try would neither confirm nor deny the existence of the cable, alleged to have been sent to France's main embassies, but said that such measures would not he out of keeping with the government's position.

Dresser is believed to have three compressors ready for shipment to the Soviet Union under a deal headed by the Creusot-Loire group of France and Mannesmann of Weat Germany. They were completed recently after an interruption in June, when President Ronald Reagan of the U.S. announced measures inlended to reinforce Washington's embargo on work in the U.S. for the pipeline.

He extended the ban on par-ticipation by the U.S. In the project to overseas subsidiaries of U.S. companies. He also tried to prohibit the export to the Soviet Union of pipeline equipment made abroad under U.S.

Communist-led CGT trade union confederation in France has called for a projest demonstration at Dresser's Le Havre factory tomorrow. The CGT claims that jobs would be lost if the compressor contract were shelved or cancelled. French companies, even if

foreign-controlled, are con-sidered by the Government here to he under a formal obligation to conform to their obligation to conform 10 their contracts on the pipeline.

Defying the U.S. embargo, the office of M Pierre Maurov, and this disappointed the the office of M Pierre Mauroy. Prime Minister, stated specifically last month that deliveries due in 1982 must be

made according to sohedule. The alleged telegram says that four of the French companies participating in programme received notices from the Industry Minister this month, to warn that measures

Dresser-France, the telegram's

ensure that the contract was national law carried out. They might go as embargo on the use of licensed far as requisition.

embargo on the use of licensed U.S. technology by European A "decision in principle" had already been made to employ such a measure against



M Pierre Mauroy: Delying the U.S. embargo.

text said, if It were to continue to respect the orders of its U.S. management and refuse to

execute the contract, Another U.S. subsidiary, Rockwell-Valves, part of the Rockwell group, was also among the companies said to have been notified. The others were Alsthom-Atlanlique, which has a FFr 400m (£33.53m) contract for 40 sparc kits of rotor blades, dated before the first U.S. embargo, and Creusot-Loire, which, apart from compressor units, also has a contract for

refrigeration stations. Alsthom has a licence agreement with General Electric of the U.S., which was initially to have supplied 125 rotor-blade kits for the project. Creusot-Loire, meanwhile, has

a licence link with Cooper Industries of the U.S. Total French orders for the

pipeline-including other com-paties, such as Thomson-CSF and Vallourec-are worth ahout \$700m (£402.3m). Britain invoked its Protection

Reagan Administration The prohibition announced this mouth by Lord Cockfield. the British Trade Secretary, was designed to prevent com-pliance with the embargo by four British companies, which the are contracted to supply £134m

worth of goods for the pipe-The EEC bas also argued that would be taken if necessary to Washington is infringing intercompanies making components for the nipeline.
Schmidt warning on trade,

June 1982

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BY ANATOLE KALETSKY IN WASHINGTON

By Doreen Gillespie in Lima

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PERU'S civilian Government has deelared un indefinite stale of emergency in the provinces of Lima and Callao to give the police a free hand to wipe out terrorist activity.

The state of emergency allows police to search and arrest without warrant, bans public meetings and restricts travel within the country. Although Peru's constitution limits a state of emergency to 60 days, Dr Manuel Ulloa, the Prime Minister, said the measure would be renewed as many times as necessary.

The emergency follows the dynamiting of five electricity pylons in and around Lima
 which plunged balf Peru's
 population into darkness last week. The authorities say all five towers were dyoamited within a five minute period. Incendiory bombs and sticks of dynamite were tossed at a number of huildings at the same time and at least five shops were damaged by fire.

Damage is estimated of around £700,000 including losses caused by closure of factories and husinesses. There were no reports of deaths or serious injuries apart from two people killed in traffic accidents during the blackout.

The attacks are blamed on a Maoist group known as Sendero Luminoso, the Shinting Path, which has heen opposing the Govern-ment headed by President Fernando Belaunde stuee it took office two years ago.

Action was at first limited to sabotage of pylons and bridges mostly in the southern Slerra regioo of Ayacucho, hut has since Ayacucho, hut has since expanded to include guerrilla

At least 10 people, including five policemen, bave been killed in and around Ayacucho in the past six weeks, President Belaunde is heing pressed to call out the armed forces but claims that the terrorists can he dealt with by the police. The President has sald that they bave received financial help and advice from abroad but has not shown evidence.

U.S. sees that in the Mideast dogs do not sleep PERHAPS this is the moment. when people can turn their eyes

from the problems of war to the problems of peace. . . . People must see now that the alternative to a relatively peaceful situation is not a pleasant thing to contemplate." When Mr George Shultz, the

U.S. Secretary of State, made this characteristic understalement last Friday, the "people" he referred to were not only citizens of Beirnt, Palestinian refugees or Israeli soldiers.

The lessons which the American people draw from the Lebanon crisis may men nut in he as vital to the Middle East's future as the new realism which the Palestine Liberation Organisation's military defeat may he inducing in the Arab

More than ever, the U.S. is now established—in no small measure through Mr Philip Hahili's personal efforts—as the dominant power in the region and as the only mediator capable of providing a common language for the Arabs and At the same time Americans,

from the President downwards, have recently been reconsider. ing most of their assumptions about the Middle East and Israel. They have been deliating their hitherto unquestioning support for Israel, wondering about the vulnerability of a tiny between Israel and Egypt: the Israel confronted by the hostile idea that "let sleeping dogs lie"



Mr Shultz . . . 'great strains'

Arab hordes, thinking for the first time about the fate of the Palestinians and talking about the historic hardships which they have faced.

On the whole-and again from the President downwards Americans bave not swerved from their hasic loyalty to Israel as a nation, though they have learned to dislinguisb between the State of Israel and the Government of Mr Menahem What has changed ahruptly.

however, is the complacency that followed the peace treaty between Israel and Egypt: the

was an acceptable policy for the Middle East. The Lebanon crisis has shown that such a policy is not only unacceptable-it is Impossible. In the Middle East dogs do not sleep. They may crouch sileully, but they are always preparing to pounce,

The U.S. Government has made its continuing sympathy for Israel, despite what Mr Shultz called the "great strains" of the past few weeks, clear enough through its public statements and actions.

President Reagan's publiclyexpressed "outrage" at the Begin Government's military actions in the last days of the selge of Beirul, was a reminder of how hard the U.S. had to be pushed before it was willing openly to condemn its friends. The public's basic sympathies

also seem to be unchanged, to judge from recent opinion polls. In the latest, published on Friday in the Washington Post, the answers to the question: "Do you sympathise more with Israel or with the Arabs?" split 52-18 in Israel's favour. It may seem astonishing to Europe, but this attitude has been essentially unchanged throughout the war in Lebanon. In March, three months belore Israel's invasion. the split in favour of Israel in response to the same question

Marines under strict orders

over the use of U.S. troops ahroad is such that the 800 Marines due to land in Beirut later this week will be under the strictest orders not to get into trouble, Reginald Dale writes from Washington.

The Marines, from the 32nd aniphibious unit, have been strictly instructed not to engage in comhat, although they may " exercise the right of self-defence." If there is evacuation agreement. They will withdraw immediately.

The Pentagon says that an isolated shot at the Marines "hy a simple, deranged person" would not lead to a with-

of the PLO-the President himself still habitually refers to them as "the terrorists"—has,

if anything, grown. in the words of one State Department official.

The President now realises that the region will be lraught dangers even after the PLO's evacuation. After each The same polls suggest that crisis there will be further As long as there is no

framework for stable relationships between Israel and other Arab countries, like the one President Jimmy Carter Nevertheless, there has been helped to fashion between Israel an "historic change in perceptions" about the Middle East, Middle East will remain a running sore. And the Reagan Administration will now be beld responsible by domestic as well international opinion for

drawal, but anything much

guns and mortars, but they

They may use their

weapons individually in self-

defence if fired on hy any

other forces, including the

Israelis. They are not meant

to have direct contact with Palestinian forces, the

Pentagon says, and will not work on defusing mines and

hoohy traps.

more serious would.

Although Mr Shultz admits freely that his policies on the Middle East have yet to be

BY DAVID WHITE IN PARIS

TALKS are planned here

today hetween M Claude Cheysson, the French Exter-nal Affairs Minister, and

his Egyptlan counterpart, M

Bontros Gbali, on a possible

revival of joint initiatives in

the United Nations aimed at

forming the basis of a politi-cal settlement in the Middle

The Egyptian Foreign Mlni-

ster arrived in Paris from Washington yesterday,

Although a meeting has not

heen officially announced, M

Cheysson is known to be anxious to selze the

opportunity of renewing joint

efforts as soon as possible following the evacuation of Palestinian forces from

France and Egypt try

to revive UN initiative

doing something to heal it

"properly constructed." he has made it clear that he intends to find a new strategic plan, based on an expansion of the Camp David peace treaty between Israel and Egypt.

A second aspect of the change Enlisted men will come in U.S. preceptions about the Middle East will make Mr ashore with M-16 rifles, ufficers will carry .45 calibre Shultz's task much easier. The pistols, belicopter pilots, .38 words "legitimate aspirations of the Palestinian people," which calibre pistols. They may he supplied later with machine both Mr Shultz and President Reagan have been repeating will leave their artillery and almost daily in the closing tanks on support ships off stages of the Beirut crisis, are now deeply imbedded in American public consciousness. Some form of permanent home for the Palestinian people is now recognised almost universally in the U.S. as the most important precondition for stability

in the Middle East.
This does ont imply that the U.S. will suddenly abandon its antagonism to the PLO in its present form or even that it will put real pressure on Israel to make concessions to the Arabs, unless the Arabs make clear that they will offer Israel

It does mean, however, that the American perception of the basic problems of the Middle East is, for the first time, aligned with the vision in the Arab world. Americans may still see Israel as their closest friend in the Middle East, but they now also see its policies as

Moi moves to strengthen security forces

By Quentin Feel, Africa Editor PRESIDENT Daniel srap Moi of Kenya announced two drastic steps at the weekend lo reorganise the country's security forces in the wake of the abortive August 1 military coup: the disbanding of the Air Force, which was at the heart of the rebellion, and the sacking of the police chief, Commissioner Ben Gethi.

The announcement, on Voice of Kenya radio, said the 2.100man air force would be reorganised under the command of Major-General Mahamoud Mohamed, hitherto the deputy Army Commander, and the man credited with the crushing of

the coup attempt.
The radio said that Commissioner Gethi had been "retired in the public interest" with in the public interest" with immediate effect, and replaced by the head of presidential security. Deputy Commissioner Bernard N'ilinu. Mr Gethi was also replaced as head of the paramilitary general service unit, which head to put down the county attempt. the coup attempt.

The sweeping action in disbanding the Air Force, which is one of the best trained and equipped in Africa, with 29 combat aircraft, including 10 U.S.-built FS jet fighters, was effectively forced on President Moi, because fewer than 500

men have escaped detention.

The sacking of Mr Gethi is much harder to explain, for he has always heen regarded as a close ally of Mr Charles Njonjo, the former Attorney-General, now Minister of Constitutional Affairs, who is arguably the most powerful man in Kenyan Government after the President.

There bad not been any public questioning of the loyalty of the potice during the coup attempt, which was crushed in seven hours, although it is now officially said to have cost 159 lives (unofficial estimates are much higher) and caused damage valued at more than \$100m (£58m).

The new air force commander, General Mohamed, is

from the northern Somali minority group.

Reuter adds from Harare:

The Zimbahwe Government yes-terday showed journalists the bodies of three white men who it says are South African soldiers killed in a clash with the Zimbabwe army last week. Mr Robert Mugabe, the Prime Minister, said the men were part of a group that had set up a base inside the country.

Emotional departure for PLO

BY STEWART DALBY AND NORA BOUSTANY IN BEIRUT

EVACUATION of the Palestine Liheration Organisation 1PLO1 at first moved ahead slowly yesterday. Between 500 and 1,000 troops, mainly from Fatah. the mainstream guerrilla organisation headed by Mr Yasser Arafat, the overall PLO leader, assembled in a sports sladium in West Beirut and were driven down to the largely-destroyed port area of

the capital. There a corps of about 350 French paratroopers, the van-guard of the projected 1,600 to 2,000 multinational force, and the Lebanese army checked them on to a Greek freighter which was to take them to Larnaca in Cyprus and then on to Tunis, or direct to Tunis.

The first departures ol some 400 pro-Iraql Arab Liberation Front fighters on Saturday, took place against a background of

trucks, to the accompaniment of revolutionary songs, wives, girl friends and children cried, in the Christian enclave to the cursing Arab regimes.

One little blonde girl, who burst into tears, asked why she was crying, said: "Now I will have to wait 10 go to Palestine. I hope Yasser Arafat lives long

Some 12,000 Palestinian fighters are due to he evacuated over the next two weeks. This comprises 7,500 PLO fighters and leaders, including Fatah; Saiqa, the pro-Syrian faction; the Arab Liberation Front; the pro-Iraqi equivalent: and the various PLO brigades from Arah countries. There are also between 1.500

and 2,500 Syrian army regulars who were cut off in West Beirut in the early days of the Israell siege of the area in June.

of dark green Lebanese army will leave each day. Some will shouled, screamed, and spat. north, while others will go by cursing Arab regimes, road to Damascus. Ultimately, they will end up in eight Arah countries: North and South Yemen, Sudan, Syria, Jordan, Iraq, Tunisio and Algeria.

But the fragility of the operation was shown up yesterday when Israel halted the evacuation after the Palestinians reportedly tried to leave with military vehicles. They were allowed to take only their small arms with them. This includes weapons up to their Russian-made AR-47 automatic rifles. the tension has tangibly drained

arms fire as PLO guerrillas fired bothered by these gestures. their guns, and occasionally let Meanwhile. the postponed off rockets and mortars into the elections for a new Lebanese reat emotion.

If all goes according to plao, off rockets and mortars into the elections for a new Lebanese As the fighters assembled on between 500 and 1,000 fighters, air for no opparent reason president may take place today.



except to protest at the occasion. Along the port area and the sea front, once one of the most This has meant that although elegant esplanades in the world, men and hoys fired their guns from the shattered city. Beirut almlessly 10to the sea. But is hardly quiet. All day yester neither the Israelis oot the day, there was a cacophony of French paratroopers seemed

A draft resolution submithy France and Egypt late last months put no the

back-burner because of both the deterioration in the fight-ing in Lebanon and evident The Franco-Egyptlan intia-

tive was based on mutual and simultaneous recognition of all the parties involved. It affirmed both Israel's right to exist within secure frontiers and the Palestinians' and the Palestinians' "national" right to selfdetermination. The Egyptians were understood to have won backing from several Arab countries for the draft reso-

President Mitterrand made clear in his television inter-view last week that France was sticking to its previous policy on the PLO, and would recognise it only if it adopted a oegotlating position based on recognition of Israel.

IMF ANNUAL REPORT

Industrial economies make progress against inflation [Indices of Prices of Non-Oil Primary Commodities Exported by Primary Producing Countries] BY MAX WILKINSON

A WORLD economy dominated tax and henefit systems, may be by the indsulrial countries con- resulling in an underlying uptinued fight against Infalion, ward trend in unemployment, stagnant output and resulting Even after the ending of the difficulties in many less countries described in the International Monetary Fund's annual report* out yesterday.
The fund says there is

evidence that considerable pro- their own, he effective, gress has been made in reducing Inflation in the industrial countries last year and in the first half of this year. It believes however, that the

recent deceleration of consumer price rises has stemmed in part from transitory inditences including the decline in oil prices and the weakness of hasic commodity prices as a result of the worldwide fall in The report says: "Increases

in basic costs (mainly wages) have not come down nearly so much during the past year as final product prices, and continued progress in reducing them will require both maintenance of restraint in financial policies policies will not be reversed." In splie of exceptionally high

and rising unemployment in most countries, the fund says national authorities bave repeatedly expressed the conviction that further progress in reducing and controlling inflation is the prerequisite for any lasting improvement in employ-

i It olso warns that the structural rigidities, ichiding labour markel restrictions and

present recession, the world might not return to previous levels of employment without a fundamental effort to reduce these rigidities. Reflationary policies would not, on

Moreover, the Fund says that in most countries the fiscal stimulus to the economy has not been reduced much since actual government deficits have been This emitted from a fall-off in revenues while disbursements for social security and other programmes have tended to stay constant, or to

The report also discusses dif-ferent aspects of the world economy and its difficulties in

Inflation The inflation rate in the industrialised countries, as mea-sured by the change in prices from one quarter to the next, fell to about 5 per cent at an annualised rate in the first three

average annual inflatiou rate In the major countries reached a peak of 14 per cent, but decelerated after oil prices tapered off lo between 9 and 10 per cent in the latter part of 1980. deceleration of the Inflation

this should not underwine sound monetary policies.

modity prices and an easing of wage demands in several connmonths of 1982. This is well helow the prevailing rate in 1918, just before the effect of the second oil price increase.
After the 1979 oil shock, the

In most of 1981, however,

The further slowing down of inflation at the beginning of this year reflected the retapse of the U.S. economy into recession, the ilectine in oil prices, the marked weakening of com-

· MONEY SUPPLY 61 per cent in both 1980

13 per cent a year during 1976- deceleration of price inflation

nominal wages, The Fund says that the stag-Warning on interest rates

there is reason to expect that future aberrations of interest rates from desired levels will be limited and temporary: without it progress towards greater price slability and ultimate achievement of sus-

talnable economic growth at a satisfactory pace would be jenparised," the Fund says.

The IMF underlines that

large hudgel deficits should he cortailed as a means of reducing interest rates and preventing the private sector from heing weakened.

• Output.

sioo on an annual basis. may now he an improvement in real disposable incomes and The broadly defined money real wages have now begun to investments. supply grew at the rate of 11 to rise as a result of the faster • UNEMPLOYMENT

nation of economic growth has the anti-inflation policies of the major powers as well as the "corrosive effect" approached or substantially exceeded, those in the 1973 recesincomes and expenditures along with the deflationary effects of the oil price rises in 1979-80.

These negative influences were softened to some extent hy the increased demand from the oil-exporting countries. This helped real exports from the industrialised countries to rise at rates of 8 per cent in 1980 and 4! per cent in 1981.

• Investment and stocks, Weak consumer spending. the erosion of profitability and the higher cost of capital have all contributed to depress rates

of capital spending. The fund says: "At mid-1982 In real terms, gross fixed the economies of the industrial investment in the industrial countries rose by 4 to 5 per cent a year in 1978 and 1979, but it clined by 1! per cent to 1980 says the weakening of capital investment was less severe than after the first oil shock in 1973.

Depressed profits, the relasioo on an annual basis."

Lively high cost of lahour and
It helieves, however, there rigidities in labour markets
may now he an improvement have, nevertheless, shifted the fucus of capital spending tolabour-saving rather than to capacity-expanding

By mid-1982 unemployment ton DC 20431 U.S.

compared with the rise in bad risen to about 8 per cent of the combined labour force of rates of unemployment bave the industrialised countries, compred with 5 per cent in 1979. sion. In the industrial countries this increase in unemployment occurred despite a alowing in the growth of the lohour

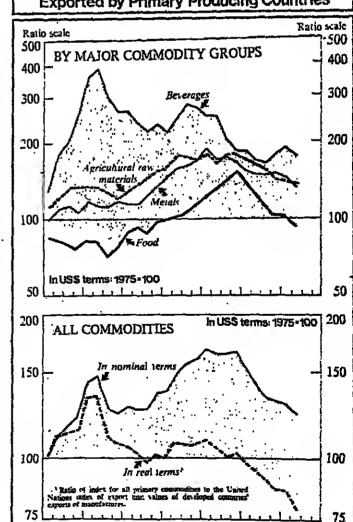
force. The fund says that although the current increase in unemployment is cyclical, there, are severe implications. "First, there is an absence

of any prospect of an carly reversal, given the outlook for only modest recovery from the present recession. "Second, the recent cyclical increase has been superimposed

on a secular increase of more fundamental character." Even hefore 1980, unemploymenthad been rising steadily for ahout 12 years (except in Japan) from about 3 per cent of the labour force in 1966 to 4 per cent in 1973 and 6 per cent in 1979. Recently the effects have heen particularly severe for imigrants, minnrity groups and young workers. Average youth unemplayment in Europe and North America reached 18 per

*International Monetary Fund Annual Report of the Executive Board for the financial year ended April 30, 1982. Washing-

cent early this year.



THE FUND says the main feature of the global pattern of payments balances in 1981 was a partial reversal of the shifts which occurred in the preceding two years. The enrrent account sur-

1977

1978

pluses of the nil exporting countries declined steeply, while the current account deficits of the industrial countries were reduced. There was a continuation of this trend in 1982. The recovery of the balan-

ces of the industrialised countries from deep deficit after oil price rises, reflected their efforts in economise un the use of nil, the subsequent weakening of the oil price and the general recession of outpnt. The Fund believes that the combined deficit for the group as a whole is likely to be substantially reduced again this year.

The general weakness of demand contributed to the oll

countries. However. domestic policies of the major nil exporters have tended to he less expansionary than after the oil price increase of

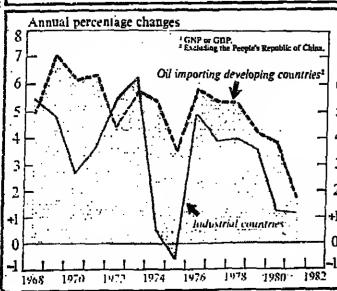
1980

Although imports of these countries rose in velume hy 20 per cent in 1981 compared with 15 per cent in 1980, a moderate increase of perhaps 5 per cent is expected this year. The role of import expansion in curtailing the current account surpluses of oil exporters has been less than it was after 1973-74. The major factor in recent years has been the net deficit on services and transfers. The developing countries

without oil have been in a much worse position. Their exports of commodities have been badly hit hy weak demand and falling prices

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Selected Groups of Countries: Growth of Real Output 1968-811



However, the IMF helleves

the determination to stick tn rate was limited and irregular.

THE FUND warns that there

is no easy way to reconcile the need for eredible policles to reduce mnney growth with the

need for stable interest rates,

Max Wilkiuson writes.

If the authorities stick to a

target for the expansion of

money supply, changes in

tinancial practices and in demand for money can lead

lo witle fluctuations of Interest

A weighted average of in-dices of narrowly defined money In the seven major countries shows that annual rates of expansing have been reduced from 10 per cent in the period 1976-78 tn 74 per cent in 1979 and to

and 1981.

BY DAVID TONGE

apparently indicate that the

by ope-third to SDR 14.9bn.

oil-developing countries, rose to

India, the largest in the fund's

This increased level of activi-ties and the high level of

interest rates helped the IMF's

operational income to double to

SDR 1.79bn. Operational ex-

to SDR 92m, all nf which was

added to reserves, bringing

these to a healthy SDR 935m.

11.3hn, including an

5hn arrangement with

1978 and hy about 10 per cent a year in the past three years.

countries were stalled in a prolonged period of slow growth. Aggregate growth of real GNP In these countries averaged and by another i per cent last only about it per cent a year in year. Nevertheless, the Fund 1980 and 1981 compared with 4 per cent from 1977 through 1979; and 1982 is shaping up as another year of weak expan-

therefore of consumer demand. After a decline during 1980,

adequate, the demands on the

compared with SDR 19.2bn of

limilities to members under

their reserve tranche holdings

(SOR 15.6bn), and lor the un-

1982, its usable ordinary

Since then, Mexico

Fund's income thrives on world adversity

the next increase in quotas not expected until 1984-85, the fund in meeting these conditions. may need to continue to supplements its ordinary resources by borrowing in the next few years, its report says. Last year for the first time its

drawn halances of louns agreed commitments involved a higher (SDR 3.8bo). proportion of borrowed relts outstanding borrowings at sources than of those ordinarily that date amounted to SDR 6.Slm from the Saudi available. Nonetheless, officials apparently see the prospect of Arabian Monetary Agency and borrowing from private, as penses rose by 120 per cot to SDR 1.2bn from the Bank of SDR 1.54hn. The fund's net International Settlements and against official markets as remaining distant. iocome increased from SDR 80m associated central banks.

Almost all the increased approached the IMF for almost advances made by the IMF last SDR 4bo, but this comes after year regulred to meet condi-

mitments was dramatically cut. of payments assistance had had few or no conditions attached. Indeed, liquidity is now far better than many expected in The fund's report refers to the 1980 and 1981. However, with problems faced by an increasing number of developing countries The fund has long been

criticised by developing countries for its "conditionality." but its report writes of the advantages obtained by coun-lries which have adopted IMF programmes: " Developing countries with Fund-supported programme generally achieve a sig nificant improvement in their balance of payments, both in absolute lerms and in comparison with all non-oil develoning countries. Second, the rate of inflation grows less in countries

This spate of lending causes several months during which

the fund's level of fresh com- years, most of the MF's balance

with Fund programmes than in non-oil developing countries as

THE IMF's RESULTS for the the IMF to warn that, though year ended April 30, 1982, its liquidity is at present

fund thrives when the world fund's resources are likely to

faces adversity. Total advances remain high over the next few

outstanding from the IMF rose years." At the end of April.

Fresh commitments, all to non-sources amounted to SDR 22.9bn

In the previous three a whole."

exporting

fail in the surplus of the

over (a) c t**io**Ω. curre :he re away intn cullu and (

Langi Tbe sente forei:

Another U.S.-Brazil trade dispute looms

ANOTHER BRUISING trade its sales price in the U.S., Fairchild Industries, is that dispute between the U.S. and according to Fairchild esti- Embraer, which is a Brazilian Brazil is looming over charges mates. that the Brazilian government that the Brazilian government the petition is now with the pany, receives numerous substance unfairly aided the development. Department of Commerce dies on the development, manument and export of the country's most successful Commission which will deter. Bandeirante. This is a complaint civilian aircraft, the Embraer mine whether there is a case to which could be alleged against

steel products are all on the ings following the lodging of seeking to challenge Western current list of headaches the Fairchild petition on companies in their fields. between the two countries. With August 13.
the exception of steel, where Fairchild makes clear that the exception of steel, where

Bandeirante, an 18-seat commuter aircraft, These duties could add up to 44 per could add up could add up to 44 per cent to Swaringen, a subsidiary of

The petition is now with the

believe the outcome could

Government controlled company, receives numerous subsilandeirante.

answer. The ITC has 45 any of many similar manufactures, shoes, sugar and days to come up with its find-turers in developing countries,

Fairchild Swaringen also says the U.S. has dropped five out it regards its complaint against that Embraer has recently been of six specific complaints, all the Brazilian manufacturer as a offering its U.S. customers the other disputes are virtually test case. Government officials interest rates less than half of those required for the purchase deadlocked.

Fairchild Industries, the encourage the major U.S. manu- of its own Metro aircraft. As struggling U.S. aircraft manu- facturers, Boeing or Macdonald a result. Fairchild's claims facturer, has formally asked the Douglas, to take similar action Embraer's share of the com- U.S. government to impose against their main foreign commuter aircraft market has grown petitor, Europe's Airbus to almost 35 per cent in its Industrie. Iaunch in the U.S. three years
The petition from Fairchild ago, and that its own position

Japan steel mills deny dumping charges

suffered proportionately.

THREE MAJOR Japanese steel mill have denied a dumping charge by the U.S. commerce department, Sumitomo Metal Industries, Nippon Kokan K.K. and Sanyo Special Steel, were commenting on the reported preunimary ruling that heat-resisting and stainless pipes and tubes from the Japanese mills were sold in the U.S. below their fair

market value.

The preliminary ruling is the result of the Commerce Department's Investigation of a dumping complaint by Babcock and Wilcox Company of Beaver Falls, Pennlylvania. The Department said the dumping margins ranged from 0.62 per cent to 10.14 per cent of the product's

Dumping occurs when steel is sold of a price below that charged in the exporters home market or below the manufacturers costs of production.

As a result of the prelimin-ary ruling last week importers of such tubular products from the three Japanese mills will be required to post bond equal to the dumning margin—effec-tively raising the price of the

products to fair value. U.S. officials sold more 24,000 net tons of the pipe and tube products worth about \$85m were shipped into the U.S. List year. But they were unable to say how much of that steel was covered by the ruling.

A final ruling is due by November 1. If today's finding is unheld the bonding requirements could be replaced by permanent nenalty duties.

India rejects attack on trade regime liberalisation

By K. K. Sharma in New Delhi

THE INDIAN Government has rejected complaints by domes-tic companies that foreign concerns are taking advantage of its liberal trade policy to dump their products in the country.

The complaints relate mainly to imports of soda ash and poly-ester and viscose fibres, the prices of which have fallen sharply following a glut. The government has rejected complaints that free imports of such raw materials has adversely

affected domestic interests. One reason for the rejection was that the imports were wel-comed by user industries which claimed that domestic produc-ers had raised prices to show that cheap imports were affect-ing sales and capacity utilisa-

Taiwan eases curbs on Japan

TAIPEI—Taiwan bas lifled restrictions on \$42 Japanese consumer and fishery products, economic officials confirmed

The economic ministry an-nounced late on Saturday that Taiwan would resume imports of the 842 Japanese items as a first step to honour its commitment to phase out restrictions it bad earlier placed on 1,500 Japanese products.

BUILDING SOCIETY RATES

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Paul Cheeseright reports on a UK company in a new series of occasional articles about consultants at work

Facing up to a tougher future

BRITISH CONSULTANTS have is increasing competition to be is no accident. It has been had a good run, but they are faced from engineering consul-facing a difficult decade, accord- tants of all nationalities. Mr

Invisible earnings from consulting engineers have risen steadily to £487m last year to move to higher value work from £401m in 1979. This year, in high technology areas and in according to the Association of Consulting Engineers, new work is keeping abead of work finishing off and there could be a 12 developing steel complex at Misurata in Libya. Dastur of the general consul-

on Invisible Exports noted, is now that the Libyan authorities that margins are still under are committed to heavy spend-great pressure from rising ing in a sector of which they salaries and local expenses.

Against this, there has been Atkins has been called in. some reduction in interest. The contract it has won proimproved competitiveness. The welded into the management group's pretax profits in the teams to help control of the year to last March rose sharply to £1.6m from £794,000 the and quality of the contractors' year hefore. work.

But in the longer run, there Atkins' involvement in Libya

SHIPPING REPORT

in the charter market, com-mented E.A. Gibson Shipbrokers

tanker surplus. As well as the envisaged.'

WITH A record amount of laid-up vessels, some 131m dwt

tanker tounage-some 55m are used for storage and an un-

deadweight tonnes-laid up he- specified number simply trading

cause business is so slack, the uneconomically, market could return to balance Already this year, 15m dwt

rently depressed rate structure very light,
in the charter market, commented E.A. Gibson Shipbrokers equilibrium for modern efficient

ing to Mr Des Sainsbury, a Sainsbury observed that Atkins director at W.S. Atkins, one of the biggest of the UK consulting groups.

India the Philippines, and the

The immediate problem for India won the general consulthe consultants, the Committee tancy contract early on, but have no first band experience,

ratea and inflation which, noted vides for technical and project Atkins, was coupled with a fall management assistance. Personin the value of sterling and has nel from the group have been vides for technical and project

cultivating the North African markets for 20 years. Indeed, last year it completed what is believed to he the most valuable consulting contract ever granted to an independent

Since 1969 it had been working on the El Hadjar steelworks expansion project for Société Nationale de Siderugie of Algeria - a contract which lasted so long, it took 3m manhours of work by Atkins' specialists.

The Algerian contract was partly instrumental in encouraging Atkins to develop the North African markets, but the group's activities are worldwide. It had a 1981-82 turnover of £46.9m. of which 43 per cent came from overseas.

At any one time, both at bome and abroad, the group can be working on more than 250 contracts. Each has a project manager, responsible to a project director and a senior director who would be responsible for operations in a distinct

gether from within the group the resources needed for a particular task. Atkins, from its base in Epsom, Surrey, bas a total of 2,000 personnel split into divisions corresponding to particular disciplines and sectoral aclivities.

Atkins is best known for its work in the steel industry, Mr Sainsbury noted, and it tends to have knowledge of the projects being considered around the world and when they will come up.

In the case of the Misurata steel complex. Atkins knew five years ago that the Libyan Covernment was planning a development, so it maintained contact.

On capital projects like Misurata, total consultancy costs to the buyer could amount to between 2 per cent and 7 pcr cent of the total outgoings. The consultancy work will go through several phases, starting with basic feasibility studies, through project development to

Atkins is often in competition with plant contractors for feasibility studies, which Mr Sainsbury said, might be offered free, although their price would wrapped up in the possibility of plant sales. "The original conceptual work needs to be done by a consultant indepen-dently. It sets the project in

Consultants

at Work

the market place." Contractors have a basic interest in making and selling equipment; their minds are not geared conceptually, according to Mr Sainsbury, "All contractors' efforts are on the physical side—they don't think in terms of the market or the product

For a consultant, the que tion is how to establish what a client needs and bow the need can be met. "If you have 100 people on an air route, you don't need a jumbo jet."

Motorola urges action Hopes for market balance on Japanese bleepers

BY LOUIS KEHOE IN SAN FRANCISCO

MOTOROLA Inc. of Schaumberg Illinois has filed a petition with 1981, Matsushita introduced a a DM 435m (£101m) order to the U.S. Commerce Department earlier than expected.

Such hopes, however, have no the figure for all of 1981—and immediate impact on the curthe new building programme is and the International Trade Commission asking for anti-dumping action against a Japanese manufacturer of pagers—the bleeping message dictation devices. According to

in its weekly review.

Units acceptable for today's Motorola, Japanese entry into the \$400m (£235m) U.S. market, combining to reduce the large earlier than perhaps previously for pagers in late 1981, caused a

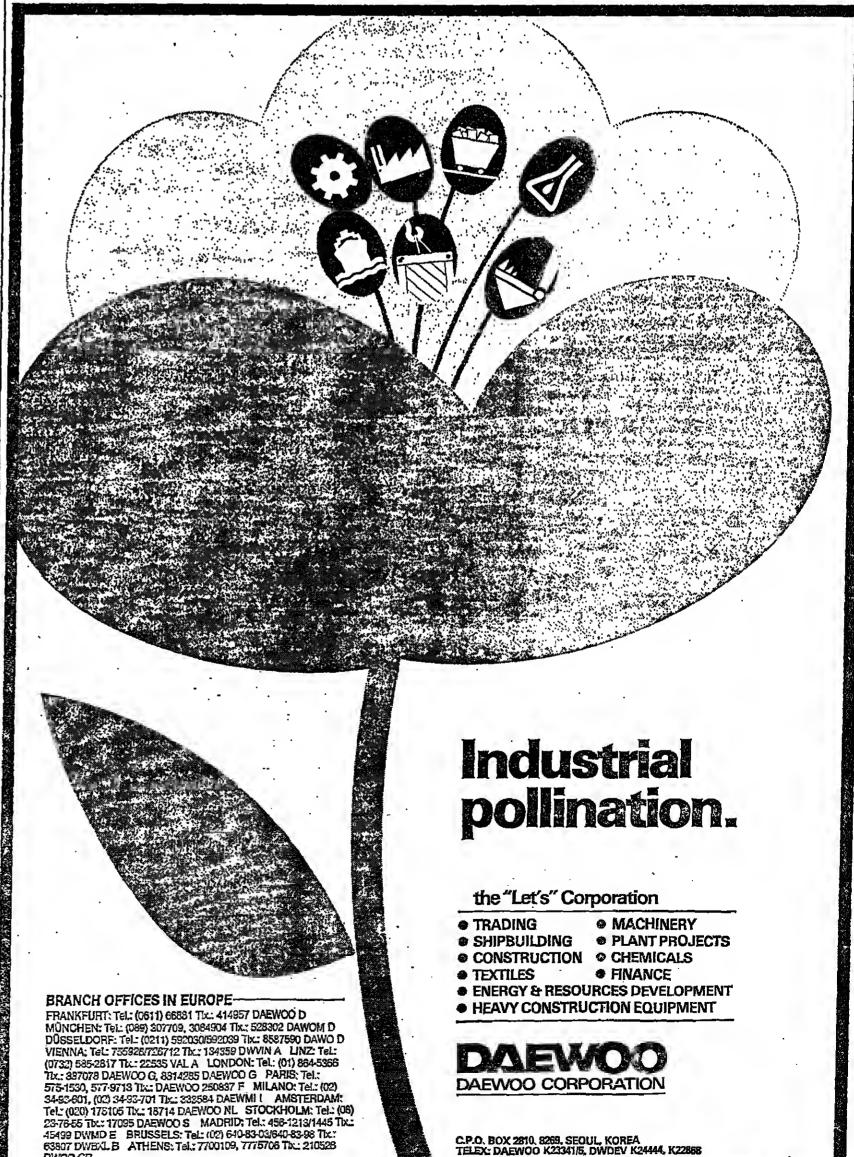
lent Matsushita pager was of Jeddah. priced at \$215 in Japan at that time. Motorola contends. The

30.000 units in October 1981.

Thyssen wins £101m project in Saudi

A UNIT of the diversified Motorola says that in October | Thyssen steel group has received pager device in the U.S. selling erect a big commercial centre here for \$79 to \$90. An equiva- at the Saudi Arabian port city The order went to Thyssen

time. Motorola contends. The Saudia, a subsidiary of Thyssen Matsushita devices were Rheinstehl Technik GMBH, the immediately successful in the engineering company in the U.S. market. Motorola says that Thyssen group that supervises Matsushita took orders for 25 to execution of the project.



EEC reaches deal with Turkey on cotton yarn exports BY GILES MERRITT IN BRUSSELS

as a result of the new bi-lateral price minima and a surveillance arrangement reached between system to ensure that the quotas Brussels and Ankara on established for different EEC Turkey's cotton yarn exports, member States are not exceeded. and a mutual agreement to drop restrictive measures that bad stemmed from their cotton row. The European Commission has now negotiated a special export restraint deal with Turkey that will for this year

EEC-TURKISH relations are of 75,500 tonnes. The pact also expected to improve discernibly contains a system of export

The quotas range from 25,540 tonnes for West Germany and 29,990 tonnes for Italy this year down to 3,600 tonnes for the UK and just 21 tonnes for Greece. No figures bave yet been agreed between Brussels and Ankara limit Turkish cotton yarn sales for quota ceilings on cotton in the EEC to an overall figure exports during 1983.

World Economic Indicators

FOREIGN EXCHANGE RESERVES

		(U.S.Sm)		
	June '82	May '82	Apr. *82	June 81
UK	10,574	11,134	17,644	14,837
Belgium	2,262	2,183	2,203	4,886
Italy	12,859	11,482	11,420	15,870
Netherlands	7,146	7,463	7,559	7,616
West Germany	37,408	38,045	37.624	44,618
Japan	21,702	22,801	: 23,102	24,245
U.S.	9,000	9,750	10,090	. 10,751
•	May '82 -	Apr. '82	Mar. 82	May '81
France	13,669	15,260	17.439	27,201.

INSURANCE

Problems of brokers' in-house schemes

BY JOHN MOORE, CITY CORRESPONDENT

broker, that insurance company subsidiaries within its new UK acquisition Alexander Howden Group are under-reserved, highlights the problems which can arise if brokers attempt to in-bouse insurance company activities.

Insurance brokers buy insurance on behalf of clients from tosurance companies. They are expected by the clients, who range from individuals to multinational companies, to place clients' business in secure markets at competitive premium The brokers are not remune-

Lloyd's of London underwriting syndicates, into which they place their business. Insurance companies earn their money by attempting to

make sure that the premium flowing to their groups are not exceeded by the insurance an underlying underwriting loss on their business to precompetitive insurance rates may not be sufficient to meet. The money which they earn on claims. invested premiums usually enables them to show an overall

inaurance company operations. In doing so the brokers hope to which can be generated by any prompted by the realisation that one big ticket account, such as UK brokers, with large Lloyd's the insurances of a major indus-trial company, or secure smaller interests, were making huge their own group which look like forms of captive commission being extremely profitable (that arrangements. is, where insurance claims are not likely to exceed premiums).

company underwriting facilities because insurers in the U.S. bad in addition to their management to lay off risks after falling of Lloyd's of London underwrite stock market values bad eroded ing syndicates. In their their reserves, integrated organisations, brokers Now, while I integrated organisations, brokers arranging insurance cover may gained a larger share of the

THE REVELATION last week their Lloyd's underwriting by Alexander & Alexander syndicates or lines of other reservices Inc., the U.S. insurance business. insurance business.
As a broker places a piece of

business he takes a commission. If be arranges a complex re-insurance programme on a big account he will he using many companies offering reinsurance. In placing the risk be could be taking a commission many times over on any one piece of

If the hroker is arranging the reinsurance programme with his own insurance companies, he will in effect, be converting risk-bearing insurance premiums into non-risk bearing insurance broking commissions for his own group.

The brokers are not remune-rated by their clients but are pald commissions by the insur-sidiary companies are allways ance companies or other likely to appoint the parent insurance interests, such as broker as the placing broker on major reinsurance accounts rather than other independent brokers. The subsidiary insurance companies should receive profitable business,

This form of premfum strip-ping only works when insurance business is likely to be profitclaims they have to pay out. ahle. Things can go wrong. A In an era of historically high freak series of very large claims interest rates, many insurance —for example, on computer companies are prepared to take leasing insurance husiness or asbestosis-will mean that reserves of the brokers' in-bouse serve market share by offering insurance company subsidiaries

This is because, as the insurance husiness has been threaded in and out of in-house companies In the UK insurance brokers and back again, so the cost of have in recent years been keen commission payment paid out of to develop their own in-house premiums to the brokers, will

have risen dramatically.

The acquisition moves by U.S. enliance the amount of revenue brokers in the late 1970s were amounts of money on these

The U.S. brokers were producing enormous amounts of reinsurances and other business Some brokers in the UK have reinsurances and other business created a number of insurance for Lloyd's in the mid-1970s

choose to start their insurance programme with their syndicates at Lloyd's of London. Usually, however, they prefer associated with the more remote reinsurance programmes of gained a larger share of the world commission cake through their acquisitions of UK hrokers, they are finding that strict financial controls are needed if hroking and underwriting are to be successfully reconciled.

NATIONAL SAVINGS are falling well behind the £3bn target set by the Treasury as its contribution to overall funding for

Net National Savings receipts for July fell £15m on the month to £138.7m, bringing total net contributions by National Savings for the first four months of the current financial year to £504.3m — barely half the required amount of £1bn at this stage of the year.

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However, moves announced by the Treasury on July 22 to the attractiveness of National Savings to the investing public came too late to have much Influence on July's

The first move, which doubled the maximum holding in index-linked National Savings Certificates (still known as Granny Bonds) even though they are now available to all investors) from £5.000 to £10,000 applied from Monday, July 26, so was only effective for one week in

July.

The other move, the launch income of a National Savings income bond, took effect on Monday.

The Department of National Savings reports that both these offers have resulted in a sub-statial boost for savings. Des-pite atrong Press criticism over the penalties for early cash in income bonds worth £5.7m were sold in the first week and bonds worth £14.5m the second week. Granny Bonds worth £25m were sold in the final week of

July, compared with an average weekly sale up to then of £15m. Even so, total granny bond sales in July at £98.5m failed to reach £100m for the first time in many months, being £8m

The department however puter will be available in reports a strong recovery of Granny Bond sales in August volume production plant and

Voters with the Calvinist view

BY JOHN HUNT

a study which they commissioned indicates that the high level of unemployment is unto be followed up by quantita-likely to lose the Tory party a tive research amongst 2,000 large number of votes at the people across the country. next general election.

The survey showed that un-committed voters do not blame the situation on any one party and believe it has developed under successive governments. The research was, however, of a tentative nature. It was a qualitative programme carried out by BJM Research in which eight groups of 12 people were questioned in Liverpool, the

Scotland that IBM will manu-facture personal computers for

the European market at its

Although IBM is refusing to

comment it is known that Greenock is one of the leading

contenders for the project in

competition with plants in other

The IBM Personal Computer

was launched in the U.S. last

August and bas been selling in comparable numbers to the established market leaders

Apple and Tandy. It bas been

so sucessful that IBM has had problems meeting demand.

The IBM Personal Computera

have been available in Europe

in very limited quantities as some companies have bought them from U.S. retail outlets

to resell in the UK and else-

where. IBM has not yet announ-

ced when the Personal Com-

plant in Greenock.

European countries.

The results are published in Conservative Newsline, a new monthly newsheet which, 52ys Central Office, is intended to enthuse party workers. Party officials speak of the need to keep members informed and involved over the next 12

were invited in off the street.

Such research is now likely

to 18 months-indicating that they anticipate the election next According to Newsline the re-Midlands and the South-East. sponses show that the public They represented a cross-section expects Opposition politicians

the Personal Computer.

levels of productivity are in its

people. This is about the com-

pany's maximum limit for one

ICL, Britain's largest com-

puter : manufacturer, looks strongly placed to win a £50m

contract to supply computer terminals for the Inland Reve-

In 1980 ICL was awarded a

major contract to supply power-

ful mainframe computers for

the computerisation of the

row as other manufacturers were not invited to tender. IBM

fought strongly for an open

The decision caused a major

Personal Computers

SPECULATION IS growing in would be suitable for making

location.

PAYE system.

RANK OF ENGLAND 1.0NOON 20th August 1982

poor working practices, over-

lity for unemployment.

trend levelling out or dropping.

RESEARCHERS at Conservative of socio-economic groups, all and trade union leaders to ac sised their appreciation Central Office are claiming that without party affiliation, and cept their share of responsible strong political leaders. strong political leadership, which was interpreted by Central Office as a plus factor for Labour and SDP claims Mrs Thatcher. Researchers were about their ability to solve the problem were not believed by also surprised to find that the the floaters," it states. "And the groups took an "almost Calvoters did not share the critics' vinistic view" of the need for views that unemployment was personal responsibility, achieveall the fault of the Government." ment and effort.

Newsline also announced that The Government was not seen as free of responsibility, but the the party has formed a Campaign for Defence and Mulusteps it had taken to root out lateral Disarmament headed by manning and uncompetitiveness Mr Winston Churchill, Conser-were seen as necessary. valive MP for Stretford. The The groups saw about 3m campaign is intended to head unemployed at the next general off any electoral threat posed election but wanted to see the by the growing strength of the Compaign for Nuclear Disarma-

Many of the groups empha ment. enock may make Low stock levels 'a threat to recovery'

BY MAX WILKINSON, ECONOMICS CORRESPONDENT

A LOW LEVEL of stocks in the will be reduced. UK economy could pose a "If domestic suppliers are un-threat to recovery by encourage able to meet sudden increases in Other factors in the decision ing imports the Fraser of include the balance of Allander Institute warns in its ably turn to foreign suppliers workloads at IBM's European plants, costing and the number Economic Quarterly Review of employees. Greenock's good published today.

The iostitute, which is part favour. Possibly against it is that It employs nearly 2,500 of the university of Strathelyde. says that so far there is little evidence of a substantial return to stockbuilding in the UK.

Since real rates of interest remain high, the costs of Increasing the ratio of stocks to output are significant.

plications of this development are twofold: firstly without a return to lower real rates of interest the upward impetus normally generated at this stage of the cycle by the rebuilding of stocks will be drastically reduced.

"Secondly, if British businesses now expect to work with permanently lower stock/output reflate their economies. tender which is now required ratios, their capacity to meet under EEC and GATT rules, junforeseen changes in demand

The institute says that any move towards permanently lower stock levels could be very dangerous unless accompanied by an increase in the ficxibility pronuction.

to tulfil their requirements."

If domestic suppliers are un-

orders, purchasers will inevil-

The institute also point out that it will be impossible for all countries to achieve a recovery based on higher exports and The enstitute says: "The im- restricted home demand.

"While individual govern-ments may see this as desirable, it is only coocerted action to increase demand which will pull the world economy out of reces-It says countries like the UK

with very large trade surpluses will come under the strongest pressure to take action to

It argues that devaluation would not be able to provide much of a stimulus to the economy without adversely affecting prices. And it says no reflationary policy can avoid the risk of increasing the rate of price inflation, even when extra government spending is extra por involved.

To exest "The Government this

must surely be aware of this and the likelihood that it will be prepared to run such risks must be increasing as the election looms ever closer."

The Fraser of Allander Insti-tute Quarterly Economic Com-mentary Vol 8 No 1. University of Strathclyde. 100 Montrosc Street, Glasgow. 2.

Statement on Lear talks nossinie

By Our Belfast Correspondent

LEAR FAN, the Northern i Ireland company which has more than £30m of Government backing for a plan to build a carbon fibre executive alreraft may this week indicate the progress of negotiations to raise overdue private development

The U.S. parent company, Learavia Corcoration, Is having talks with ceveral interested parties who might sumply the estimated £50m needed to see the aircraft through its certification programme and into production.

Beech Aircraft Corporation, a leading U.S. light aircraft manu-facturer, is said to be considerng a bid for the company. Beech's chief executive, Mr Lindon Blue, resigned as Lear Fan's managing director in

Saudi Arahian investors, act ing through a European company, have also been in talks. Lear Fan directors were not available vesterday to comment on a report that a decision on the refinancing cotions would be made on Thursday.

The Government imitally committed \$27m of redeemable loans and grants to the project, and added a further £7m earlier this year while the search for private capital continued. The Northern Ireland Department of Commerce,

which has a minority holding. would say only that it was closely in touch with the situation. Twelve De Lorean sports cars which have been held by

Northern Irpland Carriers against a £67,000 debt are to he publicly auctioned September 14. on

Prospectus for biotech must await appointment

By David Fishlock, Science Editor

THE BRITISH Technology Group (BIG) will appoint senior husiness management and a chief executive before it issues a prospectus for its proposed £15m blotechnology venture.

The venture, to be based on research by the Agricultural Research Council, will try to explnit genetic engineering techniques for the agricul-tural industry, such as Cell-tech—the first genetic engineering company backed by BTG—is developing new technology for the drug industry.

The potential for genetic engineering in agriculture ranges from giving plants resistance to diseases, pests and the weather, to increasing the yield and uniformity of a

But no company prospectus has been issued yet, and no final decision taken on the capital required to launch the new company, while the appointment of a new chief executive is awaited.

A spokesman for BTG denied that Ultramar, the UK oli company had put money into the venture, but said it was "a potential investor." BTG was also seeking institutional investors. It wanted to commit as little of its own money to the venture "as it can get away with." the spokesman said. BTG sees its main role as midwife to the new company, which it hopes will be born before the end of

the year.

One formula being discussed with potential investors is for total launch capital of £15m spread over five years. The figure is based on the £12m with which Celltech was launched in 1980, increased according to inflation. The BTG investment in Celltech was £5m.

No name has been registered for the venture, but BTG staff refer to it as "Agrigene" or "Celltech's country consin." They stress, however, that it will not be a carbon copy of Celltech-drawing only on those parts of the Celltech blneprint which are approp-

One difficulty voiced by some potential investors concerns the role of the Agricultural Research Council (ARC) and its ability to deliver the results of basic scientific research with the facility which the Medical Research Council (MRC) guaranteed to Celliech. For example, the MRC had transferred all its information on monoclogal antibodies to Celltech in little more than a year.

The research institutes of the ARC have a strong tradi-tion of independence from the London hezdquarters of the council

Bribes reaction

BRITISH LEYLAND and Ford are ready to investigale any specific allegations that slaff have been bribed over the placing of multi-million pound contracts. The com-panies said they did not have the full details of allegations made in yesterday's News of the World that staff were oribed, but said if any specific allegations were made they would be investigated.

Detective Chief Superinten-dent Colin Powell, the bead of West Midlands CID, said The Wesl Midlands police are not as yet in possession of any detail of these allegations."

Telephone advice

BRITISH TELECOM customers are having problems with the telephone service from Britain to Antwerp, Belgium. The Belgian telephone anthority has changed the dialling code for Antwerp from 31 to 3. Numbers in Antwerp have also been changed by the addition of a further prefixed figure. Custo-mers needing belp are advised to contact the international operator.

Hadfields capacity

IN June, 1981, Hadfields, the Sbeffield engineering steel maker, cut its 350,000 tonne per year capacity by two thirds and made 1,800 of its 2,600 workforce rednadant. A table in Saturday's editions of the FT stated erroneously that the company bad closed down completely its engineering steel production.

Kodak introduces four instant cameras today

BY ELAINE WILLIAMS

EASTMAN Kodak is to intensify previous designs. its attack on the instant camera Much of the profit in instant market with the introduction cameras comes from film sales, today of a new range of cameras. rather than the cameras them-It is trying to challenge selves. There being only two Polarold's domination of the big manufacturers in the sector. market when global sales of instant cameras are static.

The global annual market for development of instant cameras. instant cameras is about 10m units. Polaroid holds 60 to 70 per cent of the U.S. market. It introduced new models this year

business for each is sufficient for continued investment in

Kodak's new range is split into four models, which cost from £20 to £75. Each incorporates sophisticated electronic to stimulate sales. Kodak says circuitry and built in flash. The that its new Kodamatic cameras cameras will be manufactured are slimmer and cheaper than in the U.S. and West Germany.



The 20,000-tonne concrete loading column is manor of Howard Doris's dry dock into Loch Kishorn.

Loading column will replace oil pipeline

BY RAY DAFTER, ENERGY EDITOR

A UNIQUE piece of oilfield Agip (17.26 per cent); Century equipment—a £29m concrete Power and Light (9 per cent); loading column—is making a Ultramar Exploration (6 per slow journey around the north of Scotland to Phillips Traction (5 per cent): and British Electric Traction (5 per cent).

Petroleum's Maureen Field, 163

Petroleum's Maureen Field, 163

Tesel Services, a UK company

following its construction in the structure to be positioned early next month.

an bour. It is one of a number ment. of innovations being introduced by the Phillips consortium in the Maureen Field.

In order to save offshore steel frame placed on the seabed while the platform is being completed on sbore. The wells will then be joined to the platform when it is positioned next summer. The loading column is being used instead of a pipeline direct to shore.

relatively small size of the field. whole: Industry estimates put recoverable reserves at 170m barrels, with shares in 30/6 have not

Production is expected to 1984. The average output is process of being established. expected to be 72,000 barrels a

Interests in the Maureen Field, lying in block 16/29, are:

miles north-east of Aberdeen. providing well logging services.

The 10,000 tonne column, for the oil industry, has signed some 430 ft tall, is being towed a deal with Houston-based. from the Inner Sound, off Skye. Petrolcum Service Company. Under the arrangement, worth a Howard Doris's dry dock at Loch minimum of \$3m to Tesel, Kisborn in Ross and Cromarty. Geosource will manufacture, use The tow is expected to take and market the UK company's about 20 days and should enable range of tools and data analysis equipment in the U.S. and elsearly next month. where, Tesel, based in Basing-The column will be used to stoke, Hampshire, will receive a load tankers of up to 85,000 dwt royalty on all sales during the tons at a rate of 20,000 barrels seven year, technology agree-

• THE NORWEGIAN GOVERNment has allocated a new oil and gas exploration licence nn development work, production part of North Sea block 30/9, wells are being drilled through a adjacent to the "silver block" 30/6, where both oil and gas bave been found.

The area is being opened to exploration so that the three Norwegian companies with stakes in block 30/6 can map the extent of reservoirs be-lieved to extend into block The innovations have been 30/8, before planning developintroduced as a result of the ment of the discovery as a The foreign oil companies

:(51

compared with 2bn barrels in been included in this licence. British Petroleum's Forties
Field. Even so, the production and loading equipment—excluding drilling and well costs—is expected to cost over \$1bn cent stake is being reserved. for the time being, for possible later award to a fourth. Nnrbegin late next year or early weginn oil company now in the

Norske Hydro is said to he dissatisfied that it has received such a small stake in the new licence, particularly in view of Phillips (33.78 per cent); Fina the fact that it is to act as Exploration (28.96 per cent); operator.

Labour attacks Sproat over criticism of BA

BY LYNTON McLAIN

OPPOSITION MPs, including a "latest outburst" as the worst Shadow Cabinet reacted angrily yesterday to the was predicting "more cuts and warning by Mr Izin Soroot, the Aviation Minister, at the week.

Aviation Minister, at the week.

Ar Walter Johnson, Labour end of " more tough measures " to make British Airways profitable and for sale by the next general election. unspecified

the coming wecks," Mr Spreat said at Aberdeen on Saturday not able to reply to criticism after he launched a "timetable levelled at them by the of action" to sell BA. Mr Sproat Minister." is Parliamentary Under-Secretary of State for Trade, in charge of the Government's plan to denationalise BA.

He also criticised the performance of BA and said: "I could not believe the incompetence I encountered in BA only months ago. It was a quagmire of perks and privilages."

Mr Sproat's comments re-kindled fears of further cuts and job losses at BA, despite Sir John King, the BA chair man, having said last week that next General Election."
suggestions of further redun- Mr Sproat praised S dancies were "absolute rub-

Mr John Smith, the opposition spokesman for trade, criticised Mr Sproat on his "vicious attacks on British Airways." He described Mr Sproat's

member, so far, and said the Minister

MP for Derby South, and chair-man of the Labour aviation group, backed Mr Smith's criticism and said "this was a These new, unspecified disgraceful and grossly unfair measures "will be introduced in affack on BA and, in particular. on top management who are

Mr Sproat spoke of the Government's intention to sell the slate-owned airline before the next General Election, which would not be later than May, 1984. He outlined "the timetable of action.

"First, we take British Airways into a trading profit; second, we take it into overall profit: and third, we privatise it. It is my firm intention that we shall do it all before the

Mr Sproat praised Sir John King for his "brilliant leader-ship." under which the "giant loss-maker is being turned into a profit-maker." BA is expected to report in September a loss of £350m or more for the 1981-1932 financial year.



Base Rate

BANK OF CREDIT AND COMMERCE INTERNATIONAL SOCIETE ANONYME LICENSED DEPOSIT TAKER

announces that from 23rd August 1982 its base rate is changed

from $11\frac{1}{2}\%$ to 11% p.a.

100 Leadenhall Street London EC3A 3AD

TENDERS MUST BE LODGED AT THE BANK OF ENGLAND, NEW ISSUES (RI. WATLING STREET, LONDON, ECAM 9AA NOT LATER THAN 10.00 A.M. ON THURSDAY, 25TH AUGUST 1982, OR AT ANY OF THE BRANCHES OF THE BANK OF ENGLAND OR AT THE GLASGOW AGENCY OF THE BANK OF ENGLAND NOT LATER THAN 3.30 P.M. ON WEONESDAY, 25TH AUGUST 1982. ISSUE BY TENDER OF £250,000,000

2½ per cent INDEX-LINKED TREASURY STOCK, 2001

PAYABLE IN FULL WITH TENDER INTEREST PAYABLE HALF-YEARLY ON 24th MARCH AND 24th SEPTEMBER

1. The Stock is so investment felling within Part II of the First Schadule to the Trusion investments Act 1951. Application has been made to the Council of The Stock Exchange for the Stack to be admitted to the Official List.

2. The GOVERNOR AND COMPANY OF THE BANK OF ENGLAND are authorised to receive tanders for the above Stock.

3. The principal of and interest an the Stock will be a charge an the National Long Fund, with preparate to the Conspirated Fund at the United Kingdom. cone Fund, with recourse to the Conselidated Fund of the United Kingdem.

4. The Stock will be registered at the Bank of England at at the Zank of reland, Sulfast, and will be transfetable, in multiples of one penny, by natrument in writing in accordance with the Stock Transfer Act 1969. Transfers

will be tree of stamp duty. 5. If not previously redeemed under the provisions at paragraph 14. The Stock will be repaid on 24th September 2001. The value of the principal on repsyment will be related, subject to the terms of this prospectus, to the movement during the lits of the Stock, of the United Kingdem General Index of Retail Prices maintained by the Ospartment of Employment, or any Index which may replace their Index fat the purposes at this prospectus, such measurement bailing indicated by the Index figure issued maintainy and subsequently published in the London, Edinburgh and Bolfast Gazettes.

6. For the purposes of this prospectus, the index figure applicable to any month will be the index figure exsued seven menths prior to the relevant month and relating to the manth before that orier manth: "menth" manus calendar month; and the indox retie applicable to any month will be equal to the index figure applicable to any month will be equal to the index figure specificable to the index figure specificable to the index figure specificable to any month will be equal to the index figure specificable to the index figure specificable to any month will be equal to the index figure specificable to any month will be equal to the index figure specificable to any month will be equal to the index figure applicable to any month will be equal to the index figure ap

7. The amount due on rapsyment, our £100 naminal of Stock, will be £100 multiplied by the index ratia applicable to the menth in which repayment takes occur. This amount, expressed in posing a terring to laur pieces of decimels raunded to the nearest figure below, will be announced by the Benk of England not later then the business day immediately greceding the date of the penultimete interest payment. Interest will be peyable half-yearly an 24th Merch and 24th September, income tay will be deducted from organents of more than 65 per annum, interest werrants will be transmitted by post.

9. The first inferent exyment will be made on 24th March 1983 at the rate of £1.5044 per 1100 nominal of Stock. 10. Each subsequent half-yearly interest osyment will be at a rate, per £100 naminal at Stock, or £1.25 multiplied by the Index ratio applicable to the month in which the payment falls due.

11. The rate of interest for each interest payment ether than the first, expressed as a corcentage in paunds starling to four places of decimals rounded to the nearest figure below, will be announced by the Bank of England not leter than the business day immediately preceding the date of the previous interest 12. If the Index is revised to a new-base efter the Stock is issued, it will be necessary, far the purceses at the preceding paragraphs, to calculate and use a national index figure in substitution far the Index higher applicable to the month in which repayment rakes place and/or on interest payment talks due ("the month of payment"). This notional index figure will be calculated by multiplying the actual index figure applicable to the manth of payment by the Index figure on the old base far the month on which the revised Index is based and dividing the product by the new base liquids for the aems month. This procedure will be used for each occasion on which a revieran is made during the life of the Stock.

the life of the Stack.

13. If the Index is not published far a manth for which it is relevant for the purposes of this crasocetus, the Bank of England, after ecoraonate consultation with the relevant Government Oepartment, will publish a substitute Index figure which shell be an estimate of the Index figure which would have been socilicable to the month of payment, and such substitute Index figure shell be used for all purposes for which the ectual Index figure would have been relevant. The calculation by the Bank of England of the amounts of principle and/or Interest payeble on the beals of a substitute Index figure shell be conclusive and binding dipon all stockholders. No subsequent adjustment to such amounts will be made in the event of subsequent oublication of the Index figure which would have been epiceble to the manth of payment.

would have been epplicable to the manth of payment.

14. If any change should be made to the coverage or the back calculation of the Indax which, in the solnion of the Benk of England, constitutes a lundamental change in the Indax which would be marerially detrimental to the interests of stockhalders, Her Majesty's Treasury will publish a natice in the London. Edinburgh and Beliast Gazettes immediately following the ownerment by the relevant Gazettes immediately following the ownerment by the relevant Gazettes immediately following informing stack holders and offering from the right to require Her Majesty's Treasury to redeem their stock. For the purposes of this paragraph, repayment to ettocholders who exercise this right will be effected, on a delete to be chosen by Her Majesty's Treasury, not loter then seven months from the last month of oublication of the old Index. The smount of principal due on repayment and of eny interest which has accrued will be calculated on the basic of the Index ratio explicable to the month in which repayment takes piece. A notice setting out the administrative efrangements will be sont to etockholders at their regletered eddress by the Bank of England at the appropriate time. Bank of England at the appropriate time.

15. Tenders must be ledged at the Bank of England. New Issues (B), Watting Street, London, EC4M 9AA not later than 10.00 A.M. ON THURSDAY, 26TH AUGUST 1982, or at any of the Branches of the Bank of England or at the Glasgow Agency of the Bank of England not later than 3.30 P.M. C' WEDNESHAY, 25TH AUGUST 1982. Each tender must be for one amount and at one price which is a multiple of 25p. Tenders will not be reveable between 10.00 u.m. on Thursday, 25th August 1982 and 10.00 e.m. on Wednesday, 1st September 1982, TENDERS LODGED WITHOUT A PRICE BEING STATED WILL BE REJECTED.

15. Tenders must be accompanied by payment in full, i.e. the price tendered for every £100 of the nominal emount of Stock tendered for. A separate chaque must accompany each tender: chaque must be drawn on a bank in, and be payable in, the United Kingdom, the Channel Islands or the late of Man. 17. Tenders must be for a minimum of £100 nominal of Stock and for multiples of Stock as follows: Amount of Stock tendered tar

£100--£1,000 £1,000--£3,000 £3,000--£10,000 £10.000--£50.000

£100 £25,000

18. Hor Majesty's Tressury reserves the right to reject any tender or to allot a less amount at Stock than that rendered for. Valid tenders will be ranked in descending order of price and allotments will be made to tenderers whose tenders are of or obove the lowest price at which her Majesty's Tressury

decide that any tander should be accepted (the allotment price) All allotments will be made at the allatment price and tenders which are accessed and tenders made at prices above the allatment price will be allotted in Iuli. Any belance of Stack not allatted to tenderers will be alletted at the allatment orice to the Governor and Company of the Bank of England, Issue Department.

19. Latters of allotment in respect of Stack allotted, being the anti- farm in which the Stock may be trensferred prior to registration, will be despatch by post at the risk of the tenderer, but the despatch of any letter all allotment, and any refund af any excess amount paid, may at the discretion or the Bank of England be withheld until the tenderer's cheque has been paid. In the event of such withhelding, the tenderer will be natified by larger by the Bank of England of the acceptance of his render and of the amount of Stock allocated to him, subject in each case to payment of his cheque, but such notification will cantiar up right on the tenderer to transfor the Stock so allocated.

notification will center ne right on the tenderer to transfor the Stack se allected.

20. No allottment will be made far a less emount than £100 Stack. In the event of pertial ellotment, or of tenders at prices above the alletment price, the excess amount paid will, when refunded, be remitted by cheque despetched by post at the ask of the tenderer; if ne allotment is made the amount peld with tender will be returned likewise. Non-payment on presontation of a cheque in respect of any Stock allotted will render the followent of sith Stock fields to cancellation. Interest at a rate equal to the Lenden ther-Sank Offered Rate for seven day deposits in staffing ("LIBOR") plus 1 per cent per annum may, hawever, be charged on the amount payable in respect of any ellotment of Stock for which payment is eccepted after the due date. Such rete will be determined by the Bank of England by reference to market qualations, on the due date for such payment, for LIBOR obtained from such course or sources as the Bank of England chall concider appropriate.

21. Letters of allotment may be spit into denominations of multiples of find.

21. Letters of allotment may be split into denominations of multiples of £im; en written request received by the Bank of England. New Issues, Watting Street, Lendon, EC44/ SAA, or by any of the Branches of the 6ank of England, an any date not later than 29th September 1982. Such requests must be signed and must be accompanied by the letter of allotmont, Letter's of allotment, companied by a complated registration farm, may be lodged for registration tarthwith and in any case they must be fouged for registration not later than 1st October 1982. 22. Tander forme and capies of this prospectus may be obtained at the Bank of England, New Isaues, Watling Street, London, ECAM SAA, or at any, of the Branches of the Bank of England, or at the Glasgow Agency of the Bank of England, or et the Glasgow Agency of the Bank of England, as SI. Vincent Piace, Glasgow, G1 2EB; at the Bank of Ireland, Mayna Buildings, 1st Flast, 20 Callender Street, Belfast, BT 55%; at Mollens & Co., 15 Maargara, London, EC2R SAN; or at any office of the Stock Exchange in the United Kingdom.

THIS FORM MAY BE USED

TENDER FORM This form must be lodged at the Bank of England, New Issues (8). Watling Street, London ECAM SAA not later than 10.00 A.M. ON THURSDAY, 26TH AUGUST 1982, or at any of the Zenches of the Bank of England or at the Gleegaw Agency of the Zenches along the Sak of England (25 St. Vincent Plece, Glasgow GI 259) not later than 3.30 P.M. ON WEDNESOAY, 25TH AUGUST 1982.

ISSUE BY TENDER OF £250,000,000

2½ per cent Index-Linked Treasury Stock, 2001

TO THE GOVERNOR AND COMPANY OF THE BANK OF ENGLAND 1/We tender in eccordance with the terms of the prospectus daried 20th August 1992 as follows:

Amount of above mentioned Stock tendered for, being a minimum of £100 and in a multiple on follows:--Amount of Stock tendered for Multiple . 1. NOMINAL £100--£1,000 T100 AMOUNT OF STOCK £1,000—£3,000 £10,000—£10,000 £10,000—£50,000 2. AMOUNT OF PAYMENT (4) Sum enclosed, being the amount required for payment in full, i.e. the price tendered for every £100 of the nominel, amount of Stock tendered for:—

The price tendored per E100 Stock, being a muldple of 25p (tenders lodged without o price being stated will be rejected):—

respect of Stock allotted to me/us be cent by cost at my/our risk to me/us at the eddress shown below. SIGNATURE of, or on behalf al. tenderar PLEASE USE BLOCK LETTERS FORENAME(S) IN FULL SURNAME FULL POSTAL

COUNTY

A separate chaque must accompany each tender. Chaques should be made payable to "Benk of England" and property of the state of the separate of b Each tender must be for one emount end at one price which re e multiple of 25p.

POST-TOWN

STAMP OF LOOGING AGENT

POSTCOOE

Resorts look for 'instant success'

SEASIDE HOTELS and guest houses in many British resorts this year are suffering the first full effects of the recession. The unemployeds' redundancy payment blow-out on holidays by the sea, which has cushioned trade over the past two years, is tailing off.

The loss of business from a big proportion of 3m unemployed, together with the longer term effects of a radical change in the pattern of British holidaymaking, is forcing the seaside to look closely at what it has to offer and how it can sell itself.

Resorts. hotel and guest interest in the idea of promoting themselves through the High Street travel agent alongside the overseas package holi-day operators who have taken away much of their business over the past few years.

Next year about 12 resorts. including mighty Blackpool and weather has played a part in the Scarborough, are joining a pri-ject catled "Holiday UK," offer-resorts had fairly good business ing hotel and guest house holi- with fine weather in March and days through travel agents, and April but then weather and trade also in the "Instant Booking" deteriorated. Fine weather also scheme under which seaside coincided with the start of holidays can be booked through school and industrial hotidays tourist information offices in inland eities and towns.

In the "Holiday UK" scheme, the resorts will feature in a reflects the hasic change in the break holiday in England: the multi-resort brochure offering pattern of British boliday number of holiday trips multi-resort brochure offering pattern of British boliday-holiday packages in a range of making. Until a few years ago hotels and guest houses. The resorts expected people to react brochures, like those of the to their national Press advertisoverseas package tour opera- ing campaigns in January and tors, will be on display in February, to send off for a travel agents' shops and cus-resort's brochure, choose a hotel tomers can make their bookings and book a good five months or at the counter. Their 10 per cent more in advance. deposits will he the travel agents' commission.

and by the British Resorts Asso- foreign and they are more likely ciation. Mr Michael Montague. to book that early than book a chairman of the board, is fond second British ooe. of saylog that it is easier for Blackpool residents to book holidays in Benidorm than in their own town.

It's not the English seaside we like grants to be made outside the industrial areas under Section to be beside in recessionary times, reports James McDonald

from 6 per cent to 8 per cent

Moreover, many of these holl-

and guest houses have had to

adjust-rather slowly in many

cases-to this change and to

soticit mid-week and long week-

encouraged this swing.
Tourist board statistics illus-

trate the growth of the short-

number of holiday trips (holidays of one night or more

away from home) by Britons in England rose from 56m in 1979

to 58m last year but the total

number of nights spent away from home declined from 315m

nights to 300m nights over the

Another disadvantage British

resorts face is that Britons who

their accommodation. British

resorts have a long way to go

hefore this becomes a standard

Many hotels and guest houses

same per

and large hotels,

11 per cent to 12 per cent.

disliked and rejected by many the British holiday often takes hotel and guest house owners. A second or even third place. pilnt scheme has been operating for two or three years but only this year, after two bad seasons, has it gained wider support.

Just how bad seaside business has been is difficult to estimate, although even in the last few traditional peak season weeks the seaside has declined from vacancy signs could be seen outside hotels and guest houses in
many towns.

39 per cent in 1979 to 36 per
cent last year. Holidays in
London, on the other hand, cose house owners are showing more side hotels and guest houses in

It is a frank resort tourist officer or hotelier who admits over the same period and bollto baving had a disastrous year, days in other large inland but most are willing to talk of English towns increased from "appailing" trade elsewhere on the coastline.

Besides the recession, the and most resorts began filling

Rost this fluctuation itself resorts expected people to react

Many people now leave decisions for a holiday in Both schemes are supported Britain until the last minute, have been abroad expect by the English Tourist Board Their main holiday is often private toilet facilities with facility in most medium sized

With nearly 90 per cent of full-time male paid employees in Britain having four weeks holiday or more a year, comtheir own town.

The use of travel agents on pared with 36 per cent in 1974 deficiency and the recent Govcommission. however, is still and with 20 per cent in 1970, ernment decision to allow 4 of the Tourism Act will be a stimulus.

The Tourist board has only about £5m available for grants this year but even this amount should be useful as a pump primer for investment by

buteliers in improved facilities. A number of resorts are For those who have taken a going to considerable lengths main summer holiday by the to attract trade with special Mediterranean, the British seaevents and attractions. Scar-borough, with state aid, has side resort has to compete with other British tourist attractions. spent about £10m on confer-The percentage of all holidays ence and hotel facilities. in England by Britons spent at Geographically it is hanimed in by the depressed industrial

Midlands and the North and it

has been beaming much of its promotional publicity to the south and west of England. Blackpool, also tradionally dependent upon the industrial Midlands and the North West and North, experienced comdays are short breaks of two or naratively good business in three days and seaside hotels March and April but then went through a very bad patch. In July the town council used

£125,000 of next year's lourism budget for an advertising campaign. "Business took off end bookings. campalen. "Business took off The greater mobility of the nearly four weeks ago and with cac-owning holiday makec has school holidays and lovely weather coinciding, we are doing good trade now," said a

tourism spokesman Blackpool is still keeping Its fingers crossed for it has invested beavily in a long eight weeks "late season." About £870,000 has been spent on the famous lights and illuminations which will be switched on on

Paper for black Londoners

By Lisa Wood

THE FIRST newspaper for London's blacks, The Vuice, will be on news-stands at the Notting Hill Carnival August 26.

The Voice is aimed at Britisbborn blacks, unlike the expatriate-orientated, more milltant Caribbean Times, It will have a weekly print run of 50,000 and cost 20p.

Mr Alex Pascall, managing editor of The Volce, said: "We want to make it clear from the outset that our role will be to unite our multi-cultural society rather than create any differ-

A pilor Issue of the paper published loday, was financed with the aid of a £7,500 grant from Hackney Council. It carries a wide variety of articles, from details of community meetings with police in Hammersmith and Phiham to nort. TV. motoring and tip problems of black old people. Finance to launch the paper totalling £60.000, was obtained through the Government's Small Loan Guaranlee Business

Waterways freight

survey By Andrew Fisher

BRITAIN'S Inland waterways carry over 60m tonnes of freight year, according to the first official survey of such traffic in

the UK. The survey was compiled for the Departments of Transport and the Environment by Liverpool University's Marine Trans-

port Centre.
It says traffic carried on in land waterways accounts for 1.5 per cent of UK freight when measured in loune-kilometres. In 1980, 62m ionnes of freight went on inland waterways and estuaries, or 2.3bn tonne-kilo-

metres.
Of the 2,350 km of waterway track recorded, in the survey, 31 per cent was not used by freight traffic in 1980.

Traffic to and from the open sea accounted for S1 per cent tonne-kitometres moved Maritime waterways - mainly suitable for seagoing vesselsaccounted for just over 90 per

The goods most commonly carried were petroleum, accounting for 25 per cent of the total, effluent 117 per cent), and crude minerals (16 per cent mainly sea-dredged aggre

Call for drug prices inquiry

THE EUROPEAN Commission has been asked to investigate claims that drug coolpanies are charging the National Health Service up to 10 times more for their products than they do in other countries. Mr Ken Collins, MEP, has asked the Commission to investigate and take action against any companies it finds overcharging and igooring the Treaty of Rome rules on fair

competitioo. His call follows a court case last month in which a whole sale chemist was fined £2,380 for selling medicines without a

product licence. The chemist, Mr Malcolm

Cohse may recall conference to seek escalation of health dispute

BY DAVID GOODHART, LABOUR STAFF

brought to a head as soon as possible, but the meeting of the cult it will be to repair the TUS health services committee on Thursdoy is unlikely to back to a head." moves for an all-out sirike.

This is partly because two of the unions on the committee-Cohse and the National and Local Government Officers Assuciation-would bave to consult their membership before stepping-up the action.
But under continuing pressure

from the National Union of Public Employees, to back an all-out strike Cohse may decide

to recall its delegates. Nupe is also considering an Employment Secretary, said yes claim in any way possible,

federation of Health Service TUC.Congress in Brighton next be improved whatever the out-Employees will meel later this month calling for the strike to come of the Royal College of week to discuss the possibilty be spread into other industries. Nursings' hallot on the pay of recalling its annual con- Mr Bob Jones, Nupe national offer, He also justified the difference to endorse an escalation officer, said vesterday: "We ferential on the grounds that of the 15-week beaith dispute. don't want to see this dispute nurses are more skilled. Health service union leaders lingering on. A number of conbelieve the dispute must be sultants have told us that the longer it lasts the more diffi-

> Nupe will back a move from the Association of Scientific Technical and Managerial Stuffs to call on the TUC for a 24-hour general strike on September 15. ASTMS will put the plan to the health services commlitee.

The Government looks un-

THE EXECUTIVE of the Con- emergency resolution to the terday that the offer would not

Sir Ian Percival, the Solicitor General, said at the weekend that if the current offer to nurses was accepted every nurse damage-so we want to bring it would be receiving at least 50 per cent higher pay than in May

Management and union officials are due to meet today in Derbyshire to try to end an ambidancemen's strike nver a bonus payment row.

 Mr Jack Boddy, national secretary of the Transport and likely, however, to Improve the General Workers Union's farmioffer of 6 per cent to oncillary, workers section, has urged his workers and 7.5 per cent to 90,000 members to back the nurses. Mr. Norman Tebbit, heatth workers 12 per cent

finances attacked

By Our Labour Editor

THE TUC has east its first stone in a so-far low key campaign against UK membership of the European Economic

Community. A leaster published to coincide with Congress concen-Irales on the EEC's "crazy finances " and says II is " time to cry halt."

It says the UK will pay a net contribution to the EEC this year of £500m—the second highest level of all countrys' budgef payments, in spite of this country's having the third lowest income per

The EEC spends 60 per cent of its budget on agriculture, says the leadet, and this "dominance of spending remains the main reason for our problems."

In contrast, money spent on regional and social funds is "minute," and the preempling of resources by farm spending prevents a re-order-ing of priorities.

It roncedes that a long-term solution is proposed by the end of the year, but says: "It is hard to believe that this time our EEC partners really want reform, partleularly when riley even refused Ertiain the right to exercise a veto on changes in farm prices—a veto which had been guaranteed us when we joined the Community.

BL firemen fail in jobs appeal

EIGHT BL firemen who were sacked after allegations that they slept on duly have failed to win their jobs back, An internal appeals tribunal ruled that the dismissals

must a(and despite repre-

sentations from a full-time

union official. The firemen, members of the Trausport and General Workers' Union, were sacked from the Land Rover plant in Solibuli, West Midlands, after a spot check earlied this

A Land Rover spokesman said: "The men were dis-missed for conduct considered

Postal workers' leaders Talks today on pay row in face secret ballots Mersey docks

By Our Labour Staff

THE LIVERPOOL Port. Employers' Association will meet the Mersey Docks shop stewards today in an attempt to stop a possible vote for strike action at a mass meeting of the Mersey's 2,500 dockers tomorrow. Shop stewards have deferred a decision on their recommenda-

tion to the meeting until after they have met the employers. Negotiations on pay and productivity between the employers and the Transport and General Workers Union have lasted for three months with little sign of

gereement. The employers have insisted throughour that, in return for a pay increase (believed to be £9 week], there must be stringent changes in working practices, These involve reducing the size of gangs in certain areas and stretching gaogs in other sec-

The men fear this could lead to further redundancies in a port which has already shed 1,000 dockers' jobs.

BY DAVID GOODHART, LABOUR STAFF THE POSTAL workers' union men's union (FBU) and the has changed its rules to ensure Civil and Public Services Asso-that all full-time officers of the ciation. All three are left-led union, including the general and the issue in many other

secretary, face a compulsory unions has created an unusual election every five years by alliance union between left-secret branch ballot. Wingers and trade union re-The change was agreed at the Union of Communica-tion Workers' rules revision

conference by 90, 730 votes to 73, 620 this weekend. The rule seldam backer by union leftaffects only newly-elected officers and does not apply to the union's 13 full-time officers who have been elected for life. The vote was carried against the wishes of the national eve-

cutive. Support for the move, backed by the left has been bullding up over a number of years. The executive will now put proposals for a revised contract of employment for officers before the next annual confer-

The election rule has also the national executive was been adopted by the building defeated by 100,012 vates to workers' union (Matt), the fire- 71,210.

both the general secretary and all senior officials by secret ballot and the electrician's union (EPTU), also right-led, elects its general secretary by postal ballot. Another rule change backed by the left in the UCW which would have allowed local branches to take industrial action without permission from

formers in the Government.

The Government, however,

also emphasises the Impurtance

of secret postal ballots which is

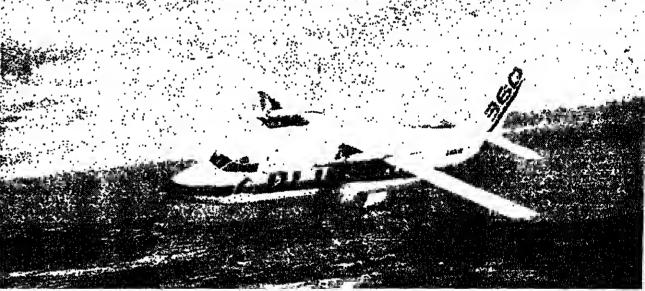
wingers seeking greater account

ability for union afficials. The

right-led Amaigamated Union of

Engiocering Workers elects

monlit, to he in breach of duty."



SHORTS WIDE-BODIED REGIONAL AIRLINERS ARE READY **FOR THE 1980s**

It took the world's oldest and one of the most experienced airplane manufacturers to build wide-bodied generation Commuterliners. In every aspect the Shorts 330 and 360 are designed for efficiency, and the 330 is already well proven in airline service having carried over eight million fare paying passengers to date whilst the 360 benefits greatly from its established heritage and will enter airline service in late 1982.

They are built with simple and functional, highly reliable philosophies in mind. They are equipped with quiet, fuel-efficient engines. And they have the most advanced flight deck equipment to be found on a comparable aircraft.

The 330 and 360 provide outstanding comfort and appeal for up to 30 and 36 passengers respectively. With these facilities, commuter passengers, and the airline operators, have the widest choice of reliable, fuel efficient, wide-bodied regional airliners in the world.

BUSINESSMAN'S DIARY TIK TRADE FAIRS AND EXHIBITIONS Venue Earls Court

OW		LAIU	\mathbf{AMD}	LA
Date	Title			
Current		Show (01-385 120	Ot funtil Aug	201
Sept 5-8	International	Hardware Trade	o Fals (0007	200121
Sept 5-9	International	Watch, Jeweller,	s Aant (UILI	002101
	rair (01-6	43 80401		
Sept 5-12	International	Air Show 101-839	3231t	
Sept 7-10	Label, Lahel	ling, Marking Exbibition—LAB	and Identi	fication
Sept 7-10	International	Carpet Fair 1021	705 67071	(1120)
Sept 12-16	International	Woodworking L	100 67011	42-7-4
	-rwie (01-486 1951)		
Sept 12-15	MAB Internat	lonal Meoswear I	Eair t-0727-633	213)
Sept 13-18	International	Boat Show (0703	323481	
Sept 14-16	Coil Winding	International '82	(0202 891339	
Sept 19-21	National Bake	rs' Buying Falr	(01-446 2411)	
Sept 21-23	Harrogate Fas	hion Fair (01-63	7 24001	
Sept 21-23	Eovironmental	l Health Exhibi	ition and Co	ngress
Sept 26-28	British Fnotwe	ar Fair (01-739 2	071)	
Sepl 26-29	Fashion Shoes	Exhibition 1046	2 503831 :	
Sept 27-29	Construction 1	ndustry Internati	nnal Exhibiti	on and
	Conferenc	e (01-242 3771)		
Sept 27-Ort 1	Furnaces, Ref	ractories, Heat 1 Exhibition (0737	reatment and	d Fuel
Sept 28-Oct 1	London Busine	ess Show t01-647	1001)	
Oct 5-7	Scotland's Gift	and Craft Trac	le Fair. SCO	TFAIR
		1911)		
	(*******	,		

Earls Court

Farnborough NEC. Birmingham Harrogate

NEC. Birmingbam Earls Court Southampton Wembley Conference Centre Barbicar Harrogate

Kensington Close Hotel Imperial College, Loodon

NEC, Birmingham Barbican

Edinburgh

Frankfurt

Houston

Hetsinki

OVERSEAS TRADE FAIRS AND EXHIBITIONS Cologne

Women's Ready-to-Wear Clothing Show (Paris (1) 258-08-40) (1) 268-08-40)

International Shipbuilding, Marine. Small Ships and Fishing Exhibition (021-705 6707)

International Public Works Congress and Equipment Show 82 (01-637 2400)

International Electrical Technology Fair—FINNTECH (01-486 1951)

...... International Exhibition for Auto, Motor Car Workshop, Service Station and Garage Equipment (01-734 0543)

International Autumn Fair [01-486 1951)
International Sports Equipment and Leisure Goods
Exhibition—SPOREX—ASIA (01-681 7688)
International Exhibition and Conference for the
Pharmaceutical Cosmetics, Toiletry and Allied
Industries—INTERPHEX (021 384 3384]
Hardware Trade Fair (01-439 3964)
International Petroleum Exhibition and Conference
OEPC (01-876 2700)

OEPC (01-876 2700)
International Mechanical Handling Equipment Exhibition—INVIA (01-486 1951;

New York

BUSINESS AND MANAGEMENT CONFERENCES Management Training Consultants: Techniques of supervisory and management training for trainers (0533 270621 Oyez/IBC: Deep water pipeline technology 101-242

Management Centre Europe: Devetoping high per-formance teams 102 219 03 90) 2481) ... Aug 31-Sept 2 FT Conference: Aerospace enters a new era
(01-621 1355)
Sept 1 John Ottensooser: Tax planning — New
Opportunities for the Professions (01-499 8281)
Sept 6-8 Frost and Sullivan: Data communications:
advanced concepts and systems (01-486 8377)
Industrial Relations Services: Law for personnel

indostrial relations and works managers (01-328 4751)

Centre for Extension Studies: Contingency planning for bomb, arson and kidnapping threats (0509 263171)

Ovez/IBC: The art of negotiating (01-242 2481)

The Textile Institute: Textile machinery—Investing

for the Future 1061-834 8457)
Concrete Society: International symposium on concrete roads (01-235 6661) ... Frost and Sul)ivan: Understanding and using CAD/
CAM (01-486 8377)
FT Conference: World Financial Futures (01-621

Rale

Sept 28

1355)
IPS: Currencies—Acquiring the Know-How (0990 23711)
Bath University: Technology and product licensing for small and medium-sized firms (0225 61244) Institute of Directors: The London International Sept 17 Financial Futures Exchange (LIFFE) (01-839

Hoare Govett: Financial futures seminar (01-353 Sept 21 1090) MTC: The skills of interviewing (0533 27062) al Bulletin Congresses: Inter-Aluminium Congress (01-330 4311) International Sept 21-23 Lloyd's of London Press: Charter-parties (01-353 Sept 21-22

London Press Centre 1000)
Energy and Engineecing: the market for enginerring equipment systems and services for offshore structures (01-439 9021)
Goodfellow Associates: Management of Diving Costs In the '80s (0224 20265)

ensure that there has been no change in the details published

London Press Ceotre, EC4 Dragonara Hotel, Bristol

Mount Royal Hotel, W1

Grosvenor House, W1

Mount Royal Hotel, London

Royal Horseguards Hotel, Ldn

Hyatt Carlton Hotel, SW1

Palace Hotel, Lucerne

Tara Hotel, W8

Savoy Hotel, WC2

Pall Mall, SW1 Plasterers' Hall, London Leicester Monte Carlo

Albany Hotel, Glasgow to attend any of the noove events is advised to telephone the organisers

John Town, of Harrogate, had imported drugs which had been exported by British and transnational drug companies, and was able to sell them more cheapty than if he had bought hem normally in Britain.

Slump in cavity wall insulation

ORDER BOOKS of cavity wall insulation companies have says that there is no medical damage that has been done to slumped by as much as 75 per evidence of long term health hazards from using UF-foam cent. At least two companies have gooe out of business and hyde vapour bas escaped into others are seriously threatened with extinction following a fect in a building, the problem television news report on has been easily rectified. allegations of possible health hazards arising from the use of urea-formaldehyde foam.

Companies using urea-formaldehyde foam for cavity wall hyde vapour from housebold insulation say that they have and consumer goods, such as been inundated with calls from cigerettes, bread and hair worried householders cancel-spraya than from the UF-foam ling orders following a report in the cavity wall. broadcast on ITN's News at Ten

what it claims are scare stories use of the product for home about a product which is insuletion in the U.S. The so bed that instead of running covered by Building Regula- National Cavity Insulation Asso- ten (two man) teams of incovered by Building Regulations and by the British Stan- ciation says that problems heve stallers he was now down to dards Institute. Companies say that UF-foem has also been accepted by the Building Research Establishment and the Government as suitable for use in soundly built premises of the appropriate construction as houses with inner walls built of brick or concrete

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The National Cavity Insula-tion Association—which re-cently has been receiving up to 50 telephone calls a day from concerned bome-owners-says that UF-foam, can, in very few cases, give off an unpleasant which might irritate the eyes . nr respiratory tracts of some individuals.

and that where urea-formaldethe air, usually because of a de-

The Association said that recent checks oo bomes with UFfoam inauletion had sbown higher readings of formalde-

Nonetheless, fears ebout the use of UF-foam remain, particu-The industry is incensed at larly following a ban on the arisen in the U.S. largely be-cause UF-foam has been installed in unsuitable buildings -particularly timber frame homes which are susceptible to penetration by formaldehyde

> There bave also been reporta of problems with some UF-foam insulated huildings in the UK. The association however. stresses that genuine problema are extremely rare and are usually encountered because the foam has either been installed improperly or in an unsuitable or defective buildings and that these cases have not resulted in long term health hazards.

No matter what the facts are,

The Association, however, there is no doubting the serious around 35 Iwo-man teams of foam in cavity wall insulation. proves shortly.

> Mr David Porter, managing director of Cosywall Limited. said that in the seven weeks since the ITN broadcast, orders for cavity wall insulation had fallen from around £20,000 to £25,000 a week to just £3,000 a

Mr Porter said that he would be able to survive beceuse of his other business interests in stone cladding and in woodworm, dry rot and dampness treatment. He intended to remain in cevity wall insulation but said that business had 201 just two teama.

Coaywall has also taken over the commitments of the Huntingdon based Foamalon insulation company which cecenily ceased trading because of a aharp drop in business.

Mr David Cameron, chairman and 60 per cent owner of Megafoam Limited said that normally at this time of the year his company would hope to be achieving around 150 orders week. Before July the compeny had been achieving around 80 orders a week. In the past four or five weeks orders had been averaging just 23 a week. Mr Cameron said: "This Ilme

ANDREW TAYLOR

installers in England and the industry as a result of a Wales. Currently we have 15 series of newspaper and tele- crews and this number may fall vision reports on the use of UF- further unless business im-

> Mr Cameron said that sales of other home insulation products, unconnected with UF had been adversely foam. affected hy the receot publicity. "We run a fibre glass Insulation business and orders here are also down by 75 per cent. I know of at least one polystyrene injection company which has gone bust because of the lack of home insulation

Mr Ken Johnson, managing director of Warmawall, which installs a wide range of insulation products in the domestic market, said that orders at his company hed fallen by about 45 per cent in the past two onths, across the whole range of the company's products.

orders," said Mr Cameron.

Mr John Baker of John Baker Insulation said that turnover at his company was now running at around £200,000 a year compared with £600,000 in 1981. He said that there had been e abarp drop in orders during the past five weeks.

Mr. Baker, who is also chair man of the Netlonal Cavity Insulation Association, said The industry will survive. I has bad these setbacks hefore; but there is no doubt that some companies are seriously under

UK CONTRACTS

New housebuilder wins major project

A COMPANY formed five months ago to build homes for sale will slart soon on an £81m developmen: A 20-acre site is to be developed by JOHN WILMOTT HOMES. Houses will be built at Barford Road. Eynesbury, St Neots. Hunis, creating a series nf village hamlets, each with about 50 to 60 houses. They will be especially suitable for first time buyers, and couples with young families with prices rang-

ing from £17.750 to £26,000. There is oulline planning permission for homes on the site. which the company is developing in association with R. H. Wales, of Gamlingay. Talks will hegin sonn with the local planning euthorities about deteils of the t. 2 and 3 bedroomed houses. The St Neots site is about three-quarters of a mile from the town centre, close to two schools and a parade of local shops. Work should begin in October 1982, with the first house

BOUYANT IN the north east is the BOWEY GROUP which reports general and housebuild-

ready about five months leter.

John Wilmott Homes is part of

the John Wilmott Group

Shefford, Beds.

ing work totalling £8m. Leading the projects awarded to the geoeral building side is a conversion and upgrading office accommodation scheme at Tan-field Lea for Ever Ready (GB). Other work covers sbeltered housing developments at Alnwick for the Royal British Legion Housing Associetion, refurbishmeot in Newcestle upon Tyne for Greater London Properties, e

Housing deals are worth over 56m on five altes released by anthorities in Newcastle Gateshead and North Tyneside, including 170 first-time buyers to be built at Wallsend in a housing exchange for land scheme with

North Tyneside Metropolitan DC. MOWLEMS E. THOMAS &

COMPANY of Ponsanooth, Truro and Newton Abbot, is forecasting another successful year with the announcement of £8m worth of new business. The largest project at £4m is

for the construction of all sub-ways, culverts and retaining walls along the 4 km of two-lane carriageway being built by Mowlem between Marsh Mills and Manadon on the A38. Othe major schemes include a PSA £1.3m contract for the construction of a reinforced con-

crete pumphouse at Falmouth, new bousing at Penzance and bospital work at Truro. CONTRACTS VALUED at £4.8m have been awarded to companies in the CARTWRIGHT GROUP, comprising four housing con-

tracts, in both the private and public sectors, and a pumping station project on the River Wye. The latter involves construction by Davies Middleton & Davies, Cardiff, for the Welsh Water Authority of a pumping station and water abstraction plant on the River Wye at Monmouth, Gwent (value £1.38m). DMD has also won a £337,000 Phase 1 contract for the Avon new beadquarters at Portisbead,

Hayward & Wooster, Bath, has gained two bousing projects and has also won Phase III of the Bath City Council'a Whiteways Housing Development, which is valued at over £600,000. . Cartwright Construction has

won housing projects from both the Leeds City Council and Kirk-lees Metropolitan Council.

new Barclays Bank in Cramling FOUR CONTRACTS, together ton Town Centre and a Mobil Oll worth nearly 13m. have been petrol station also in Newcastle, awarded to TARMAC regions construction companies largest, worth more than £1.5m. is in Scotland and will be rerried out by Cubitts. It is for studies and offices, at Clydebank Business Park, for Radio Clyde-Glasgow-based commercial radio station. Work on the two-storey building has started, for comple

> tion in 14 months. Two contracts bave also been awarded to Cubitts on Mersey-side. At Crank, St Helens, the company has a £570,000 contract for alterations and extensions to a privete hospital, for Guy Pilkington Memorial Hospital and at Clayton Manchester, extensions to an existing bakery. for Greggs of Manchesler, will cost £324.000.

In the north-east, Tarmac has £444,000 contract for roed and bridge construction work at Washington, Tyne and Wear, for Washington Development Corporation.

THREE CONTRACTS for TURNIFF CONSTRUCTION are worth a total of £2m. One is awarded by the City of Newcastle upon Tyne for the moderoisation of honses at Blakelaw, another by Nottingham CC for the modernisation of 64 houses on the Bulwel Hall Estate, and the third is for the City of Birmingham DC for similar work on 399 dwellings at Handsworth New Road.

OSSORY ROAD Developments has awarded the main building contract of around £3m for the Collonades shopping centre and new office complex in central Doncaster to FAIRCLOUGH BUILDING

SCHWEPPES has awarded contrects worth over £2m Newcastle-based builders WHELAN to build a £1.7m pro duction, warehousing and admini-stration complex at Aylesbury and a £360,000 distribution depot at Colchester.

OVERSEAS CONTRACTS First Nigerian job for Sir Alfred McAlpine

(OVERSEAS) is to work in Nigeria for the first time in the company's history, with the company's history, with the and composed partly of an winning of a £50m award for a ECGD supported export credit health project there for the and partly of a Eurocurrency Plateeu State Government, east credit. of the new federal capital of

of a school of bealth technology In Jos, capitel of the Pleteau tract is expected to take about A.T. State. 10 bospitals each of 30 22 years to complete.

ALFRED McALPINE beds, and 50 clinics. The contract will be funded by a loao to the State, led and syndicated by the Midland Bank

Balfour Beatty Engineering is buja, the managing contractor for the Work cover the construction Plateau State Government. McAlpine says that the conBryant construction Tailored space for businesses

Around the industry

SOLIHULL-READING

THE FIRST seminar am forum on phenotic insulation to be mounted by the trade association, the PFMA, is to be held on October 13 in Belgrave House, Backing-ham Palace Road, London, R will be followed by a further presentation in the Hotel, Edinburgh en November 24.

The seminars are intended for architects and other specifiers, fire officers and building managers concerned with energy savings and fire safety in the building con-struction and heating and ventilating industries.

UNDAUNTED BY the reces sion, Shoreo Trench Systems is continuing to expand its business on a number of fronts with the acquisition of Sling and Tackle (the northern based producer of nylong slings, lifting chains and specialist beam pulleys), new factory and offices space for laser company Spectra Alignment and, in France, has formed Le Blindage Hydranlique to sell or hire its traditional range of trench support systems in France. Belgium, th eNetherlands and Switzerland.

A TOTAL of 32 students have passed the 1982 Gulid of Architectural Ironmongers third year examination in quality for a Dip GAL Five prizewinners this year receive cash awards including prizewinners this number one winner Mc George Rebinson, Mac-naughton Blair, Belfust, who won the gold medal and a £50 eash prize.

TERRAPIN has created a new subsidiary company. Bond Estates, to manager and develop the group's 22 acre Milton Keynes freehold site. Twn major developments planned over the next two years will involve £1 m.

THIS YEAR'S London Building and Construction Show which opens is a three-day event, opens on September 21 at the Bloomsbury Crest Hotel, Russell Square, W.C.1.

Falklands airstrip: learning from the past

last year we were running

is considering a new 11,000 ft airstrip for the Falkland Islands has revived memories of the building of the present Port Stanley airfield by John-ston Construction in 1975.

Johnston Construction, part of the Reigate based Johnston Group, the engineering, build-ing materials and contracting company, had the benefit of building the existing Port Stanley airfield when more peaceful relations existed between Britain and Argentina.

None the less the company still hed to resolve the problems of building a 4,000 ft esphalt run-way, airport terminal facilities and a 5 km road in a windswept and remote part of the South Atlanlic more than 8,000 miles away from Britain.

type aircraft.

the following:

Impregnetion

Flagged gutter

Antikerosene

Ozy-beaconing paint

let engine exhaust screen

will be taken into consideration.

proposal covering the entire job.

B.P. 7004

number of the mailing.

(Haute-Volta).

months, including rainy seasons.

Alternative embankings

Laterite for foundation layer

Laterite coment for base layor

Laterite for jet ongine exhaust bolts

Bituminous concrete for running layer

Micro biguminous concrete for jet engine exhaust belt

aupplies and materiels we would need for an 18 month building contract. We even building contract. We even took our own coal to fire the

temporary homes shipped out managing director of Johnston Construction. "Sallings to the Falklands Britain."

then took place about every three months, so it was no good thinking of pipping back to London for anything that had been forgotten, Smeller comhowever, could be ponents,

imported into the Falklands by the company were cement and bitumen for the runway and the road connecting the airfield with the town of Port Stanley. Both lding materials, essential, were building "It took us six months just absolutely essential, were to prepare all the equipment, imported from Argentina, This

600.000m³

 $7.500m^{3}$

40.300m²

100 metres

7_500m²

7,000 T

REPUBLIQUE DE

HAUTE-VOLTA

Unite-Travail-Justice

MINISTERE DES TRAVAUX PUBLICS,

DES TRANSPORTS ET DE

L'URBANISME

DIRECTION GENERALE DES TRAVAUX PUBLICS

TENDER No. 02-12-TP-82

I. OBJECT: The Minister of Public Works, Transportetion end Urbenization of Haute-Volta is issuing an open call for bids to carry out improvement works to the traffic areas of BOBO-OIOULASSO Airport, in order to make it accessible for OC-8

II. QUANTITIES: main quantities concerning this tender are

III. ALTERNATIVES: no other alternative submitted by bidders

IV. COMPLETION TIME: maximum completion time is 24.

V. ELIGIBILITY: this tendor is open to any individual or legal entity offering the required technical and finencial capabilities.

VI. PREFINANCING: together with these guarantees, the bidders are invited to include with their bid a prefinancing

VII. SUBMISSION OF BIOS — OPENING OF ENVELOPES:

proposals, in seeled envolopes, should be submitted in Fronch and in triplicate, according to the "Model of Bid" and the "Model of Prefinancing Proposal" of the Tender file, and should

Monsieur le Oirecteur Général des Travaux Publics

OUAGAOOUGOU (République de Haute-Volca)

In case of transmittal by registered mail, the bidder should inform Monsier le Oirecteur Général des Traveux Publics by

telex (No. 5324-UV or 5282-UV), indicating the reference

The envelopes will be opened at a public session on Thursday

2 Occember 1982 at 9 a.m. GMT, in the Conference Room of the Ministry of Public Works, Transportation and Urbanization (Sangoule LAMIZANA Building), OUAGAOOUGOU.

VIII. COMMITMENT PERIOO: bidders will be bound by their

proposal for a period of 4 months as from the deadline set for

the submission of bids.

IX. CONSULTATION OF FILES: the Tender file can be

consulted at the Direction Générale des Travaux Publics

(Sangoulé LAMIZANA Building) in OUAGADOUGOU

X. PURCHASE OF FILES: the files can be acquired from the Oirection Générale de l'ASECNA in OAKAR, 32 Avenue Jean-Jaurès, B.P. 3144, OAKAR (Senegal) for a price of 100,000 (one

hundred thousand) CFA francs payable by cheque made out in the name of the ASECNA accounts egent.

XI. AODITIONAL INFORMATION: interested parties can

Boite Postale 7004

OUAGAOOUGOU (République de Haute-Volta).**

XII. POST 5CRIPTUM: bidders are advisod that a similar call for bids (elso for the BOBO OIOULASSOU airport) will be

issued early in 1983 for the construction works of an airport

terminal, a technical centre, the construction of a concrete fence

and for the supply and installation of technical equipment and

OUAGADOUGOU, June 17, 1982.

'Monsier le Oirecteur Général des Travaux Publics

obtain all additional information and details from:

the construction of several buildings to house it.

before TUESOAY 30 NOVEMBER 1982, 5 p.m. GMT.

plans to build the new airstrip go aheed.

Johnston also used aome Argentine labour to complete to house the construction the £5.4m contract. Some of the team," seys Mr Martin King, Falkland islanders also worked on the project, together with a team of about 40 sent out from

"The Falklanders were a useful addition to our team and proved very resourceful with machinery and plant which had broken down in some of the erduous conditions we hed to flown out if necessary."

deal with. We never lost a
The only other materiels single day's work throughout the entire project," says Mr

> The nearest we get in the British Isles to conditions on King. the Falklands would be in the Orkneys and the Shetlands. The construction but it can be very military now in the process of

when it raios it is coming at you almost horizontalally. "All the stone we needed was

quarried locally on the Falklands end as the local rock was pure quartzite, the wear and tear on machinery was phenomenal; but with the able assistance of some of the Falklanders and our own engineers we were always able to keep things going.

"Ground conditions also very difficult and we had to dig out a lot of peat, which can hecome waterlogged, and other unsuitable materials before filling in with stone and sand and placing the runway on tor of the infill material," satd Mr

Johnston's experience of conditions on the Falklands has weather is not impossible for already proved useful to the

could be a mejor heedache if upleasant. It is very windy end extending the existing war damaged Port Stanley airstrip from 4.000 to 6,000 ft.

> If plans for a new runwey go ahead—and a survey o possible sites is alceedy underway-it seems likely that that the airstrip will be built away from the present airfield. It would have to be lerge enough to accommodate a wide range of modern aircraft, to make the islands more independent of the South American meinland.

Johnston would clearly like lo have e second bite at the cherry if the new airstrip is built. "We would obviously like to assist in any rebuilding project on the Falklands. We bave very many happy memories of our time there, happy seys Mr King, "it was rather a unique experience."

CONTRACTS AND TENDERS

KINGDOM OF MOROCCO

OFFICE NATIONAL DE L'EAU POTABLE CALL FOR TENDER No 26/DE/82

SUPPLY OF DRINKING WATER TO THE TOWN OF AL HOCEIMA AND AREA

"The Office National de l'Eau Potable (ONEP) informs the Companies wishing to participate in the International call for the above mentioned tender that the closing date for submitting the bids, previously set for 28th July 1982 has been extended to Wednesday 29th September 1982, before 6 p.m.

PEOPLES DEMOCRATIC REPUBLIC OF YEMEN PUBLIC CORPORATION FOR ELECTRIC POWER HEDIUFF NEW 11kY SUBSTATION

The Public Corporation for Electric Power Invite tenders for the following contract which is being huanced by the Corporation. Hedlaff New 11kV Substation Adep —Contract 20150-01 Tenders are Invited. Ior riss Contract. On a Iorakev basis for the Construction of the Substation Objects and Services, along with equipment design, construction, shipping lamport to construction, shipping lamport of the services of the s following plant — 11kV switchboard.
110V Oc battery charger system, 11kV neutral earthing equipment ifor austrage 2.6 acts of turning generators and 1113xV 15 MVA transformers, oc and 41sV ac switchboards, air conditioning/ventilation plant and associated control, protection and alarm equipment, 71VV, 41sV and control cable installation, colle trenches and travs, elong with associated civil works.

The commissioning date scheduled for March 1984, The Specification documents may be based on or after 23th August 1982 Prece Cardew & Rider. Paston House. 165:167 Preston Rose, Arighton, Sussex, BN1 6AF, England that WSN-20150/11: the Consulting Engineers to the Public Consulting Engineers to the Public Consulting Engineers. Public Congraziona for Electric Power for This project.

or

by The Executive Chairman. Public Corporation for Electric Power, Nection, Nection, Popoles Demo-traine Republic of Vemen. A brief description of works is immediately obtainable from Preece. Cardow & Rider of the above address.

ART GALLERIES

GALERIE GEORGE offers unique intersement corporationales with Generic George-Collectors Plan limits interest the credit. EXHIBITION of Piece English and Continental Painteness and Watercolpars 1820-1920, 96-90, George Si, Wi. LEFEVRE GALLERY, 3D. Brutop St. WI. 01-493 1572-3. XX CENTURY WORKS OF ART. Mon. Fri. 10-5.

WHITECHAPEL ART GALLERY, E1. 3TT 0107. Tube Aldgate East. To Sept. SIR CHRISTOPHER WREN. Sun-Fr. 11-5.50. Thurs. to 7.50. (). Sat. & 29 & 30 Aug. Admission £ 150p) free chridren & Mor. days 2-5.50.

THE GASLIGHT OF ST. JAMES'S, London's most excline businessmen's ought cind No membership needed, 2 bars, flogens of dancable comranions, intripaing Caparer Acts. Happy hour 84 pm if required suberts three-course Dinner, only \$6.75, play service and the Entrance reg £3.75, play service and the Entrance reg £3.75 flay service and the Entrance reg £3.75 pm Open Mon.Fr. 8 cm. 2 at 51.79 pm Open Mon.Fr. 8 cm. 2 at 51.79 pm 2 at . Dighe of York Street. SWI. Tel: 01-930 1646 4930. EVE has outlined the others because of a policy of law day and value termoner Sapper from 10-3:20 am. Disco and Igo musicians, elamonous hosticaes, earling nooranous, 188, Regent St. 01-734 055

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SUGAR DEVELOPMENT Tendors are invited for the supply of the following equipment to be financed by the African Development Fund. Goods much be produced in the termiorise of state portriopents or member countries:

Windrowar to remove came trash
Mowara — Tractor mounted place of the state of the s

The General Meneger
KALEYA SMALLHOLDERS COMPANY LTD
PO Box 371, Maxabuke, Zambie
and marked "Tendor for Equipment"

Tenders will close at 09.30 hours on 14th October 1982. Tenders will be ogoned at 10.00 hours on 14th October 1982 et the Company Offices. Mazebuke. Tolered renders will be eccepted but must be confirmed in writing.

ALGERIAN PEOPLE'S DEMOCRATIC REPUBLIC

MINISTRY FOR ENERGY AND PETROCHEMICAL INDUSTRIES

NATIONAL DRILLING COMPANY E. N. A. F. O. R.

NOTICE OF INTERNATIONAL CALL FOR TENDERS No. IN 19.82

" ENAFOR " is launching an International Call for Tenders for the supply of:

25 No. HEAVY TANKER-TYPE VEHICLES This Call for Tenders is aimed solely at manufacturing companies, accepting consortia, representatives of com-panies and other intermediaries, in accordance with the provisions of Law No. 78.02 dated 11 February 1978 providing State monopoly for Foreign Trade.

Interested suppliers may obtain Specifications from ENAFOR—Department Engineering and Approvisionnements—1, Place Bir Hakeim, El-Biar (Alger) with effect

from the date of publication of this notice. Offers, in sextuplicate, in a sealed and registered double envelope, the outer envelope bearing no name, initials, captions, logo (etc.), of the tenderer and bearing no "APPEL D'OFFRES INTERNATIONAL NO. IN 19.82—CONFIDENTIEL—A NE PAS OUVRIR" (1NTERNATIONAL CALL FOR TENDERS NO. IN 19.82—CONFIDENTIAL—DO NO OPEN), addressed to "Monsieur CONFIDENTIAL—DO NO OPEN), addressed to "Monsieur CONFIDENTIAL—DO NO OPEN).

le Chef de Departement Engineering and Approvisionne-ments" (Head of Engineering and Supplies Department), should arrive by 9 October 1982 at the very latest. Any offer received after this date will be rejected. The selection will be made within 120 days with effect from the cloaing date of the Call for Tenders.

INTERNATIONAL NOTICE OF CALL FOR TENDERS For the supply of - MINING EQUIPMENTS - METALLURGICAL PLANTS

Nº 82/6 - 82/7 - 82/8 issued by the REPUBLIC OF ZAIRE (Le Générale des Centières et des Mines - GECAMINES) for a project which may be financed by the European Economic Community, European Development Fund, pursuant to Title III - Mineral products - of the Second Lomé Convention (SYSMIN).

CONTRACTS & TENDERS ADVERTISING

> THE RATE IS £27.50 per single column centimetre

APPEARS EVERY MONDAY

To endeavour to ensure they will have at their disposal applications to tender which best meet the industrial requirements of the Gecamines Department, the tatter has decided to postpone the deadline for receipt of applications in respect of the above-mentioned contracts from 20th September 1982 to 11 a.m. of 18th October 1982 (Lubumbashi local time), at the very lettest.

Tenders will be opened at a public session, to be held at 2p.m. on 18th October (local time), at the Contempore Room of the Delegation Generals de la GCM, Boulevard Kamanyota, zone de Lubumbashi. In connection with the above, Gecamines will organize briefing sessions and visits to sites in Lubumbashi and Likest, between 23rd August and 27th August and/or between 5th September and 10th September 1982 for firms which intend to submit tenders.

KINGDOM OF MOROCCO

OFFICE NATIONAL DE L'EAU POTABLE

CALL FOR TENDER No. 4/D/SP/82

RECRUITMENT OF CONSULTANT IN THE

FIELD OF DRINKING WATER

Within the framework of the 3rd Drinking Water project,

financed by (IBRD) the Office National de l'Eau Potable (ONEP) wishes to crecruit the services of six consultants

in the field of Drinking Water, specialised in the following

Drinking Weter (1 position)

(6) Analytics Accountancy (1 position)

DURATION OF THE MISSION: 36 MONTHS

Technique (1 position)

position)

concerned oo request.

PLACE OF LIVING: RABAT

(1) Exploitation and Management in the field of

(3) Detailed Technical Studies and Consultations (1

(5) Professional training in the field of Water

(2) Planification and Feasibility Study (1 position)

(4) Studies of large capacity Supplies (1 position)

ROLE OF CONSULTANTS

The task of the consultants is to belp the members of

ONEP by their active participation to solve technical and organisational problems, regarding the above mentioned fields. The task is defined with more details in the

schedule: "Cahier des Charges" which could be picked up from the Sales Office of l'ONEP or sent to the Parties

The propositions of the persona concerned, presented according to the Article 3 of the Schedule: "Cahier des Charges" will be sent to Mr le Directeur Général de l'ONEP, B. P. RABAT CHELLAH, and will have to reach

this address by Wednesday. 21st Sepembter, 1982, at the latest. The present call for Tender concerns the countries

which are members of "IBRD" and Switzerland.

EQUIPMENT FOR SMALLHOLDER

Quotee to be C & F Mezabuke.
Quotee to be not of import duty and estes taxi.
Quotae to be willd for 60 doye from the tender opening date.
Full specifications of equipment differed should be included with the londer.
Items starred have supplementary descriptions which may be obtained on application to the Company, Telex; ZA 42860.
Obtained on application to the Company, Telex; ZA 42860.
Payment will be by sight Letter of Credit.
Tandere should be addressed to:

BBC 1

6.46-7.55 aur Open University Ultra High Frequency only). 9.20 Scooby and Scrappy Doc. 9.40 Jacksonery. 9.55 The 9.40 Jackonory 9.55 The Wombles 10.00 Take Hart 10.20-10.30 Ploy Chess. 1.00 pm News After Noon. 1.39-1.45 Postmon Pat. 3.40 Home On Sunday, 4.18 Regional News for England (except London: 4.20 Play School 4.45 Heyvy, It's The King 4.55 John Craven's Newsround. 5.05 Ticket to Ridc. 5.35 The Perishers.

3.40 News.

6.00 Regional News Magazines. 6.25 Best of the West - the Wild West as it really

wasn't! 6.45 Comic Roots: Paul Shaoe's

7.20 Star Trek starring William here in the next decade. Shatner and Leocord

Rotherham.

8.10 Panorama: Searching for the New Zimbabwe.

9.00 News. 9.25 Play of the Month: "The Critic." a satire starring Hywel Bennett, Normon Rodway and Nigel Haw-

11.13 News Headlines. 11.15 BA In Music: "The

thorne

Robertson. 11.45 Cycling: The World Championships from Leicester.

ANGLIA

9 35 am Eurogeen Folk Teles 9.45
The Adventures of Niko. 10.15 The Gelway Wev. 11.10 North See Sega 11.50 Captain Nemo. 1.20 pm Anglia News 1.30 Monday Film Matines, "Lost Horison," starting Poter Finch. 4.09 Here Here. B.00 About Anglie, S.30 Benson 11.20 Musical 5 seciel. 12.25 mm Thoughts from Ourwich.

BORDED

3-30 am Channel Lanchtime News. Mot 9 On Where and Weather. 1.30 The Monday Holies Anglie News. 1.30 Here's Boomer 5.15 Stingray. B.30 Happy Oays. 10.28 en Finance. 12.20 am News and Weether. 1. In French.

GRAMPIAN

Street. 10.35. Child.

BORDED

GRAMPIAN

B.30 em First Thring, 9.35 50ssme
Street. 10.35 Children's Morning
Matinos: "Living Free," 1.20 pm North
News, 1.30 Monday Metines: "Lost
Horizon," ararring Peter Finch. 4.00
Cartoon, 5.15 The Electric Thoetre
5how, 6.00 5ummer at Six. B.35 Close
Encounters. 1.20 Top Rank Fights of
the 70'a, 12.25 em North Headlines. 9.30 em Wonder of the Underweter World. 9.55 Vicky The Viking. 10.15 Untamed World. 10.40 The Flying Kiwi. 11.00 Seeme Street. 1.20 pm Border News. 1.30 Film: "The Inn of the Sinth Hoppiness." atsiring Ingrid Bergmen end Robert Conat. 6.15 Private Berjemin, B.00 Locksround Monday, 5.15 The Sound of ... Ricki Lee. 5.30 Try For Ten. 12.20 em Border News Summary. GRANADA

9.30 am Wonder of the Underweter World. 9.50 Sport Billy. 10.15 Untamed World. 10.35 The Flying Krw., 11.00 Sesame Street, 1.20 pm Grenede Reports, 1.30 Exchange Flega Promenadea, 2.00 About Birlein. 2.30 Mendey Metines: John Mills, in; "The October Man." 5,15 The Two of Up 6.00 Diff rent Strokes, 8.30 Granade Recorts News. B.35 The Summer Show. 11.20 Nena Mouskour in Concert.

CENTRAL

9.45 am The Galway Wav. 10.45
Belley's Bud 11.10, Venture, 11.35
Sungray, 1.20 pm Central News, 1.30
The Weshington Treil, 12.00 The Monday Screen Matthes "A Tele of Two Colles," Stating Dirk Bogards and Opiothy Tutin 5.15 Survival, 6.00
Central News 11.20 Lou Grant, 12.25
am Come Class

(S) Stares (when on VHF)

RADIO 1

5.00 em As Raoio 2, 7.00 Mike Reod, 9.00 Simon Bates, 11.00 Tony Blackbum buth the Radies 1 Roadehow from Bournemeuth. 12,30 pm Newsbeat, 12.45 Osva Lee Travis. 2,00 Steve Wright. 4.30 Peter Powell, 7.00 Stayin' Alive, 8,00 Oavid Jensen, 10.00-12.00 John Pedi (S1.

TELEVISION

Tonight's Choice

television has made this version considerably more innocuous.

the Play of the Month slot. Like the Valley of the Dolls, with its hehind the scenes expose of the film industry. Sheridan's play is a comic look at the passions and the intrigue of the theatre

world—albeit of two centuries ago. Still, it has stood the test of time well and—since it is so rarely performed—is well worth

watching now. Hywel Bennet, Rosemary Leach and Clive Francis

profile of Ted Turner in The Man from Atlanta. Turner is revolutionising the U.S. television system by his use of satellites and

cable television: this gives us a sneak preview of what may happen

return of Star Trek to BBC 1 at 7.20. The series may be 15 years

old, each episode may have been repeated many times, but to all

true Trekkies it remains compulsive viewing.

6.40-7.5S am Open University.

+S.40 Laurel and Hardy in

"Bean Chumps."

GRANADA

10.30-10.55 Play School.

5.10 pm Crash Course.

6.15 The Silent World: 6.25 The Philpott File.

BBC 2

The BBC 2 alternative at 8 to Susann and Sheridan is a

My personal choice for the evening, however, must be the

DAYID CHURCHILL

7.00 Junior Pot Black.

8.10 Strauss and Lehar.

9.40 Cartoon Two. 9.55 Third Eye.

Y 5-21d. 5.30-7.00 n 11.20-12.20 am 5er Ser.

10.45-11.50 Newspight.

7.25 News Summary. 7.30 Best of Brass.

9.00 The Man from Atlanta.

SCOTTISH

10.00 sm Target the Imposable.
10.25 Portrait of a Village. 10.50
Memories of the Thirries. 1.20 pm
Scottish News. 2.00 Action and
Advanture: North West Pnesses.
10.00 Scotland Today. 6.40 Crime Oeak.
11.20 Late Call. 11.25 Nero Wolfe.

TSW

9.35 am Seaeme Street, 10.35 Story Hour. 11.25 Untamed World, 11.50 European Folk Tolea. 1.20 pm TSW News Headlines. 1.30 Feature Film: "Lost Honzon," starring Petes Finch and Liv Ullman. 4.00 Cartoon Time, 4.12 Gus Honsyburis Megic Birthdays. 5.15 Hers's Boomer. 5.00 Todey South West. B.30 Happy Osys. 10.32 TSW Lata News. 11.20 Postecript.

TVS

Opposing this on BBC 1 at 9.25 is Sherldan's The Critic in

S.55 am Beechcombers, 10.20 Kum B.35 am Sanchcombers, 10.00 Friends Kum 10.40 Clapperboard, 11.06 Vicky of My Friends, 10.35 Terzen, 11.15 tho Vicing 11.30 The Greetest The Real World, 11.45 Lerry the Lamb, Thinkers, 1.20 pm MTV News, 1.30 pm TVS News, 1.30 The Enternight). 100 em Encore (5), 2.00-5.00 You end the Night and the Muelo (5).

HTV

RADIO 3 RADIO 3
aournemeuth. 12,30 pm Newsbeat.
12.45 Ouve Lee Travis. 2,00 Stave
V/right. 4.30 Peter Powell. 7,00 Peter Powell. 8,00 Membed Concert (continued). 3,00 News. 9,05 This Week's composer
Rachmeninov IS, 10,00 Mendelsoch
Richmeninov IS, 10,00 Mendelsoch
Richmen

RADIO

0-5.00 Prome Pert 2: Holst (5). 9.35 When the Wer Broke Out (\$10ry by Heinnich Boill. 10.20 Clevichord Recital (\$1. 10.45 Jezz in Britern Jessunne Pates Naws.

12.02 pm You and Yours 12.27 Redia Active (S). 12.55 Weethel, travel, programme news. 1,00 The World At Ona, 1,40 The Archere. Boll. 10.20 Clevichord Recital (S). 10.45 Jezz in aritein lesturing Patei Burden Quartet (S). 11.15-11.18 News, 10.45 Jezz in aritein lesturing Patei Burden Quartet (S). 11.15-11.18 News, RADIO 4. S.00 am News alicting. 8.10 Ferming Week, 5.25 Shipping Forecest. S.32 Thoday. 8.25 Tho Week On 4, 8.43 The Boriswers by Mary Norton, edepted in five edispeds. 8.57 Weether, travel. 9.00 News. 9.05 Start The Week with John Craven (S). 10.00 News. 10.02 Start The Week with John Craven (S). 10.00 News. 10.02 Start The Week with John Craven (S). 10.00 News. 11.03 Osily Sorvice. 10.45 On Holidge with Time Brooke-Tayler (S): 11.00 News. 11.03 Osily Sorvice. 10.45 On Holidge with Time Brooke-Tayler (S): 11.00 News. 11.03 News. 11.03 Osily Sorvice. 10.45 On Holidge with Time Brooke-Tayler (S): 11.00 News. 11.03 News. 11.03 Osily Sorvice. 10.45 On Holidge with Time Brooke-Tayler (S): 11.00 News. 11.03 News. 11.0 12.27 Redis Active (S). 12.55 Weether

LONDON APPOINTMENTS

foreign

overseas.

becomes

Treasury posts

at Midland Bank

Mr David J. Wilkins has been managing director for the UK appointed to the new post of operation at Stotfold.

Liaison .

Committee

tary of the committee.

senior executive, treasury office,

at MIDLAND BANK, with responsibilities for developing

policies both in Lordon and

Other appointments within

group treasury are Mr Christopher J. Carless who

becomes B general manager's assistant, Mr Derek E. King who

currency dealing operations, in succession to Mr Wilkins and Mr Robert G. J. Holmes, formerly chief currency deposit

dealer, who becomes senior manager, currency dealing opera-

tions in succession to Mr Carless.

Mr C. H. Winter has been appointed to the board of WILLIAMS AND GLYN'S BANK.

He is-managing director of The Royal Bank of Scotland. Both banks are members of The Royal Bank of Scotlend Group.

Mr Brian Downing, monagement director of the Women's Mogazioes Group, is to be deputy chief executive of IPC MAGAZINES. Mr John Mellon, assistant director of the Mr Brian Downing, monaging

managing director of the Woman's Magazines Group, is to he managing director of the group. He also joins IPC Magazines' boord. Mr Patrick Barnes.

zines' boord. Mr Patrick Barnes, managing director of the Youth, and Practicol Group, is to be managing director of the Leisure Activities Group. Mr Michael Paton, production director of IPC Magazines, is to be managing director of the Youth and Practical Group. The appointments are from October. 1.

Mr Clive Hadley has joined the management board of STERL-NG METALS, part of the Birmid

Qualcast Foundries group, as director of the iron foundry. He joined Birmid Qualcast os an oppreotice io 1953, and went on to become sales director before

transferring to Sterling Metals in February 1981 as sales manager

currency treasury

senior executive.

9.30 am-Sport Billy, 9.50 Where Did The Colorado Go? Crazy World of Sport. 10.4S 11.10 Little House on the Prairie. 12.00 Ine seamar side of Hollywood gets an airing on ITV at Susann's epic Valley of the Dolls. This is a made-for-television of the book and film which caused such a stir in the 1960s. However, the passage of time and the dictates of American television has made this version considerably more impactant. Monday Matinee: Peter Flach, John Gregson, Anthony Quayle in "The Battle of the River Plate." 4.18 Dr Snuggles, 4.20 Ragdolly Anns. 4.30 Rowan's Report. 4.45 Watch All Night 5:15 Diff rent Strokes. 5.45 News.

6.00 Thames News with Ritz Carter and David Bellin. 6.25 Help! with "Viv Taylor

6.35 Crossroads.

7.00 The Krypton Factor. 7.30 Coronation Street.

8.00 A. J. Wentworth, BA. 8.30 World in Action. 9.00 Best Sellers: "Valley of the Dolls," part 1, 10.00 News. Best Sellers: "Valley of the Dolls," part 1 (con-

11.20 The Monte Carlo Show:
Patrick Wayne introduces
Tessie O'Shea.
12.20 am Close: Sit Up and
Listen with Barbara Leigh

tinued).

Hunt. † Indicates programme in black and white.

Superstar Profile. 12.00 Monday Matinea: "A Tele of Two Cinas." starring Oirk Bogarde. 4.15 Cartoon. 5.15 Mr Merlin. B.00 HTV Naws. 10.28 HTV News. 11.20 India. HTV Cymru/Weles—As HTV Weat except. 11.05-11.30 am Bailey'e Bird. 12.00-12.10 pm Oacw Mam Yn Owad. 4.20 On 5eler. 4.45-5.15 Goglia. 6.00 Y Seld. 5.30-7.00 Report Wales. 11.20-12.20 am 5er Ser. tsiners. 12.00 Monday Mattnes: A Tale of Two Criee' starring Oirk Bogerdo. 5.15 The Advontures of Bleck Besuty. 5.00 Coast to Coast. 5.30 Staying Alive with Edds McGes. 11.20 Musical Speciel: Miteille Mathieu is joined by Olonne Warwick and Sacha Gistel. 12.25 am Company.

TYNE TEES

S.20 am The Good Word. 9.25 North
East News. 9.30 Hande. 9.65 Golfing
Greats. 10.20 Cartoon Time. 10.30
Bygones. 11.00 Seseme Street. 1.20
pm. North East News and Locksround.
1.30 Deeply Regretted By. 12.30 Monday Marigee; "The October Men."
starring John Mills and Josn Greenwood. 5.15 The New Fred and Samey
Show. 6.00 North East News. B.02
Looks Femillar. 6.30 Northern Life.
10.30 North East Naws. 11.20 The
Russian Oance Fastive! (Hosted by
Oreon Wollas). 12.10 em Proper Propagadon.

YORKSHIRE

9.30 em Soasme Street, 10.30 Jason 9.30 cm Soazme Street, 10.30 Jason of 5thr Command, 10.55 World We Live in, 11.20 Rocket Rebin Head, 11.40 The Locomotion, 11.55 The Bubbles, 1.20 pm Calenda: News, 1.30 Menday Marlhoe: "Lost Horseon." 4.00 Contoon Time 5.15 The Two of Us 5.00 Calender (Emisy Moor end Seimont adinons), 5.35 Happy Oays, 11.15 Journey to the Unknown.

Mr J. A. Plowright has been appointed o director of GILL and industrial electronics group has oppointed Mr Parviz Mokhtari as the Gill and Duffus Group. RACING

market rival Kuwait Tower. looked capable of putting In even a semblance of o chal-DOMINIC WIGAN Although it materialised approaching the distance, swept off the attentions of her Piggott already had matters closest pursuers, as she swept THE FORT, who is not con-sidered one of Warren Place's very much under control and best classic hopes by either The Fort forged clear to put season, than Chapmon com-Cecil or Piggott, ran out a com-three lengths between himself mented: "Soba's next race will fortable winner of Saturday's and his Epsom rival. he the Diadem on Cecil has no immediate plans Sentember 23." Intercraft Solario Stakes, and t is fair to suspect that the

for the winner; saying: "I will form of the one-time "juvenile have to feel my way with him." classic " could soon be changed. White The Fort was prob-

deputy monaging director and sales director of Chromoworks,

classic" could soon be changed. While The Fort was prob-sprinter, Sharpo, and two Once the straight had been soly surprising Cecil at adversaries from 1981, Chellas-reached, only The Fort's Sandown, Soba was doing ton Park and Glancing.

WEEKS FINANCIAL DIARY

The following is a record of the principal business and financial engagements during the week. The board meatings are mainly for the purpose of considering dividends and official indications are oot always available whether dividends concerned are interives or finals. The sub-divisions shown below are based mainly on last year's timetable. Leisure Inds. Howard Motel. Temple
Place, WC. 12.00
Matt. A.I. Ren Office Green Lanc, PadGate, Warrington, 3.00
Purris, J. T.I. Reg Office, 136. Shields
Poed, Newszate soon Tyne, 10.30
Phillips Petents, Grand Hotel. Aydown
Street Minicharter, 12.90
Shaw Carpete, Post House, Ossott, nr
Whitefinid 12.00
Vinien Angel Horel, Oury St Edmunds,
13.90
Writtington Engineering, Reg Office, South
Street North, New Whittington, Chesterfield, Derbysalire, 12.09
SDARO MEETINGS—
Finalis:

COMPANY MEETINGS— 300th (John) (Bolton), Pembroke Halls, High Street, Walken, Worsley, Lineca, gaire, 12,00 ODARO MEETINGS— Finale: Monthigh W/or:h-ngton (A. J.) Interims

Interims:
Anglo American Ind
Olagden Inds.
Memer I Memory and Electronic Componexts: Mr F. G. Feuton (hocorary secretary, Association of Deposit Sharpe (W. N.1 OIVIDENO & INTEREST PAYMENTS— Glasgow Stockholders Tst 10. Do Spept Societies) will continue as chair-Giasgow Stockholders Tst 10. Do SpcPl 1.75pc Leam: Inrni Inv NV Grd Filig Rme Notes A 1957 584.50 May and Hassell 1.5p Treasury 21pc Index Linked 2011 E1.26 man of the Friendly Societies November, when he will retire. Mr P. M. Madders (honorary secretary, National Conference

TOMORROW

TOMORROW

COMPANY MEETINGS—
Highgate and Job. 51. Moss Street.
Paisley. 12.30
Highgate Dottori. Reg Office. 30. Jamestown Road. NW. 11.00
Investment Co., St Martins Heuse. 1e. St Mardias-Le-Grand. EC. 12.00
London and Middland. Portman Hotel.
Portman Square. W. 12.00
Oil and Associated fine Tst. Winchester House. 100. Old aread Street. EC. 12.00
Swen (Lohn). Head Onlee. New Marx Road.
Gorde. Editiburgh. 4.00
Finals:
Apex Properties
McKay Securities
Interims:
American Tst. of Friendly Societies) was elected to succeed him. Mr L. L. Munns (secretary of the Association of Collecting Friendly Societies) was re-elected secre-Management changes have heen made at two UK sub-sidiaries of SPS TECH-NOLOGIES INCORPORATED, of

the U.S. Mr Tom E. Clarke be-comes managing director — Unbrako Enrope, division. He replaces Mr John P. McGrath Constructions Petroleum
De Beers Consolidated Mines
Fairclaugh Construction
Hone Kong and Shanghal Banking
London and Scottish Marine Oil
OIVIDEND & INTEREST PAYMENTS who returns to the U.S. as president — Latin America/
Southern Hemisphere. Mr Mike D. Kirk is appointed managing Olvidend & Interest Parments
Ontish Ever Ready Un Spc
Chamberlain Philops 2 20
Dravron Far Eastern Tst 0.40
Feedback (USM) 10
Feedback (USM) 10
Feedback (USM) 10
Feedback 24
Mid-Susset Water 8pcPf 4pc
Mid-Susset Mid-Susset 8pcPf 4pc
Middirector — T. J. Bronks (Leicester), a position pre-viously beld by Mr Clarke. Miniand ennk Fitg water 15%-bot 15%-bot Powell Doffryn 9.550 Roval Snik of Canada Socie Ewar (John On Tiade Dev Financial Servs NV Gtd Firo Anne Notes 1988 15%-bot

Mr Kenneth Petty has been WEDNESOAY AUGUST 25 appointed deputy chairman of Petty and Sons (port of BPCC WEBB OFFSET). He was CDMPANY MEETINGS—
Denn's Llames H.I. Pen Dhice, Traword
Park Road, Manchester, 11,35
Energy Finance and General Tst, Dauntury
House, Fredericks Pince, Did Jewry, EC
5.00 previously monaging director, He has also been made a director of BPCC and technical and sales director of BPCC Web Offset Corporation. Mr George Gath becomes managing director Finals: Associated Oatries Interims:
Alue Circle Inds.
Alue Circle Inds.
Pearl Assurance
Outens Moat Ho
Rotork
Skough Estates
Squirrel Horn
Stanley (A, O.) been appointed managing director of Chromoworks — also a BPCC company. He replaces Mr Alan Moss who is now BPCC group managing director for gravure and web offset sales. Mr John Burfitt and Mr Neil DIVIDEND 6 INTEREST PAYMENTS— Aluminum Co of America 45cts Anglo-American Sec Coro 1.50 Baler Inini Coro 23cts Ballers of Yorkshire 1.60 Estion Corp 43cts Pigott have, been appointed

respectively, sod Mr Richord Rumble becomes finoccial director. .

Technology Inv Tst to become Fleming Technology Inv Tst1. P & O Building, 122. Leadenhall Street, EC, 19.30 Finals:

Earlon Corp 43cts
Exchequer 12-upc 1992 5-upc, Do 11-upc
1996 5-upc
Gross Northere Telegraph Comonny £19
upc 1206-921
Gresham House Estate 2.80
Morrill Lynch 32cts
Assumable Balleling Society 14-upc
15:8 62 57 6963
Rinks Howe McDoughil Lhs 4-upc and 4-upc THURSDAY AUGUST 28

CDMPANY MEETINGS—
Electric and General Inv. 11. Austin Frints.
EC. 12.55 Austin Frints.
Brillian Genns Hall Motel Walmiev
Sutton Coloneld Wist Ministral 12 00
Latham I Jamesh, Rep Office, Teesside Whnrf
Clautin E. 2.30

to a ninth success of the

There, the filly could meet,

among others, the champion

£7.000
Dowson Intal 4p
Energy Finance and General Tat
USM1 0 71p
Fill Intal Inv_NV Gtd Fits Page 1985 \$773.92 hell intril NV Ged Fits Pate Notes 1986 \$773.92 hell intril NV Ged Fits Rate Notes 1986 \$773.02 Mercury Common Market Tst Pts Pf 48e Parrish (J. T.) 40 Scottish and Newcastle Brewerick 2.8750 Sogomana 320 Swe-ten FKingdom of Fits Fixed Rine 201 1991 5760.88 1991 3/50.86 Technology Inv Tst (to become Fleming Technology Inv Tst) 2.70 Tescro Petroleum Cora 10cts Toarnill (R.W.1 3.50 FRIDAY AUGUST 27

DIVIDEND & INTEREST PAYMENTS-

Associated Newspapers 4.50 Apricultural Mtp Corp 14pc Eds 4/3/83 £7.000

Minhlands and Lowlends Hill and Smith New Osnee Oil Tst. Defuge Assumnce Scottish Agnicultural Inds.

COMPANY MEETINGS— Arlington Motor, Chintered Accountants Hall Moorgine Dace EC 12.09 avel-m-Bartord Invicts Works Grambam. Lincolnshire. 2.15

Lincolnshire. 2-15
Darrenport Knitwent Allen Hoase, Newarke
Street, Lekestei, 113
Jennos, Lord Daresbury Hotel, Daresbury,
Warrineton, Cheshire, 12 00
Waddington John, Reg Ohice, Waterheld
Road Leeds, 12.00
Walker Crossweller, Reg Office, Whaddon
Works, Chetlenham, 10 99 EDARO MEETINGS

inals; Jesolisated Plantations Berhnd Inybeck Yard and Goldsthe Yaring and Oillow Interime: Benford Concrete Machinery Lec Retrigorntion Scortish Northern Inv. Tst. Wagon Finance Yorkehire Chemicals DIVIDENO & INTEREST PAYMENTS

Argyll Foods 2.750
Argyll Foods 2.750
Bankers inv Tst 1,98p
Bisichi Tin 9.850
Chien (A.) 5.1450
Cohen (A.) 5.1450
Combined Intal Corp 45cts
Ornerton Japan Tst 20
Electric and General inv 1.80
French (Thomas) 2.250
Intris (Philor (Holgs) 5.050
Intris (Holgs) 5.050
Intris (Holgs) 5.050
Intris (Holgs) 5.050
Intris (Holgs) 5.050
Murin Western Inv Tst 9.8p
Northern Foods 20
Oil and Assoc for Tel 2.8s
Romney Tst 1.50
Shim Caracts 9.10
United British Secs Tet 4p
Whitiington Engineering 2.10

SATURDAY AUGUST 26

DIVIDEND & INTEREST PAYMENTS— Agricultural Mtg Corp 4:pcDe 1977-6: 3/spc Neoworth IJ.1 Dbs 3's 3!; ned 3'spc Kwik-Fit Ln 4pc Liversool 13pc 1935 5!-pc Security Scritcos 4:;pcPf 1,5TSpc

everything expected of her by Chapman in Ripon's raced colt, Reggae, earned some Greet St Wilfrid Handicap. favourable comments from race No sooner had the filly watchers at Salisbury 11 days distance, swept off the attentions of her ago.

The colt, who earned atten-tion following a fourth-placed run in a maideo, for which he started at 33-1 in the bands of Roger Wernham, looks the one to be on in the Trafalgar Square Sweepstakes

WINDSOR 2.30—Free Range* 4.00—Reggae*** 5.30—Quest**

COMPANY NOTICES

Companies (South Austrolia) Code Section 478

BASS STRAIT OIL & GAS (HOLDINGS) N.L. NOTICE OF CALL

Notice is hereby given that a tall of 2 cents per share has been made on oil 50c contributing shares paid to 20 cents each in the capital of the Company due and payable on Wednesday, 8th September, 1982, at the Company's administrative office 17-23 Queensbridge Street, South Melbourne, Victoria 3205, Australia. Shares on which the call is not paid by 22nd September, 1982, will be facilitied. be forfeited.

By order of the Board David Hill, Secretary

12th August, 1982

BANQUE NATIONALE DE PARIS

Floatine Rate Note issue of US\$ 125 million February 1979/91 . The rate of interest applicable for the SIX months period beginning August 22nd 1982 ond set by the reference agent is 111% onoually.

LEUMI INTERNTIONAL USSS MILLION GUARANTEEO
FLOATING RATE NOTES AS 1987
EXTENDISLE AT THE HOLORS OPTION
The insent rms societable to the above
Notes respect of the six-month period
commencing Soci August 1082 has been
fixed at 1192°, per annum.
The interest amounting to USSSO.10 oer
USS1,009 oriected amount of the Notes
will be paid on Wedferdiny 23rd Fabruary
1903 against presentation of Cogoon
No. 8.

BANK LEUMI TRUST COMPANY
OF NEW YORK
Principal Phyling Agent

DE PARIS Floating Rate Note Issue of USS7S,000,000 February 1878/84

The rate of interest applicable

BANQUE NATIONALE

for the Bix month period beginning August 21st 1982 and set by the reference agent is 111% annually.

EVE has outlived the others because of policy of fair play and value for mone Supper from 19-3.30 nm. Disco and to

Rio de Janeiro: Rio Branca 45, Salas 2611-2612, Centro DEP 20070, Rio de Janeiro RJ Brazil. Tel: 263 8845. Teles: ¿lo Rauters.

rackholm: Editorial Svenska Degisladel salambiyanen 7. Teles: 17603. Tel: 50 60 88.

Castamanyager F. Bath. Floor, Mhon Kelmi, Shirotan Ruiding, 1-9-5 Otermeda, Cilyodo-ku, Faz: 245 0358. Tel: 241 2520. Advertising Kastama Building, 1-9-10 Urbilannia, Chiyado-ku, Telex: 127104. Tel: 235 4050.

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TRONOH MINES MALAYASIA BERHAD

(Incorporated in Meleysia)

ANNOUNCEMENT TO SHAREHOLDERS For the second tin export tentral period from 1st July to 30th September 1982 your company has been allotted quotas amounting to 70.981 tonnes of tin tontentrates representing 49.4% of the estimated normal production for the period. In view of the severity of the cutback and the impact of low tin prices, your directors have re-examined the company's production policy to maximise cashflow and profitability whilst mini-

mising hordship to the company's employees. These constraints which have been aggravated further by the marginal ground ahead of No. 1 Dredge, have resulted in a decision to close down this unit temporarily from 18th August 1982 until such time as chere is a considerable improvement in the situation. No. 2 Dredge, however, will be able to operate normally and by redeploying the dredge crew no retrenchment of workers is anticipated at this stage.

By order of the board Wan Mohamed Wan Yusoff Secretery Kuala Lumpur 20th August 1982

AYER HITAM TIN DREDGING MALAYSIA BERHAD

(Incorporated in Malaysio)

ANNOUNCEMENT TO SHAREHOLDERS For the second tin export control period from 1st July to 30th September 1982 your compony has been allotted quotas amounting to 209.876 tonnes of tin concentrates representing 67.2% of the estimated normal production for the pariod. In view of the severity of the cutbeck and the impact of low tin prices, your directors have re-examined the company's production policy to maximise cashflow and proficability whilst minimising hardship to the company's employees.

The quotas available to the company can only sustain the continued economic operation of two units and your directors have therefore decided to temporarily shut down No. 2 Dredge from 23rd August 1982 and to retrench some employees. The possibility of reactivating No. 2 Dredge will be reviewed when there is a significant improvement in the situation, By order of the board

Abdul Malek Abdul Majid Secretary Kuela Lumpui 20th August 1982



This advertisement complies with the requirements of the Council of The Stock Exchange. It does not constitute an offer of or invitation to subscribe for or purchase any securities.

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Particulars of the Notes and Warrants are available in the Extel Statistical Services Limited and may be obtained during normal business hours on any weekday (Saturdays excepted) up to and including September 6, 1982 from the broker to the issue:

House Govett Limited, Heron House, 319-325 High Holborn, London WCIV 7PB

August 23, 1982

Closer together—but still wide apart

Employee consultation has been more prevalent during recession, but a union backlash is feared. John Elliott reports

DURING THE recession the of communication managements and about company problems has often increased considerably. But genuine con-stitution and participation, in which employees have a real chance of influencing management decisions, has not in-creased to anything like the

Managers have been keen to cushion the shock of redundancies and closures by spelling out the worst news about potenproblems to their employees. But they have often been forced to go shead and take action without involving the employees in further consulta-

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The challenge for managements when the recession eases enough for companies to take stock of their long-term relationships—will be to turn these aomewhat negative forms of consultation into a more

 One of the problems that will then emerge will be the varying views which are often held by managers and trade union activists within a company about the management styles and consultative exercises of the past two or three years.

Conversations with managers and trade unionists in a number of companies in the past year suggest that, whether or not relationships appear placid or even harmonious on the sur-face, there are often sharp differences of opinion.

"We tell the shop stewards things about the company's per-formance and plans that we wowidn't have even told our operational managers five years ago," says Bob Roberts, East Anglia regional personnel manager for the Birds-Eye Walls part of the Unilever group, extolling his company's consultation. tation system. "That may be so but we haven't had an impact on actual company policy," re-

At BL, with Its history of troubled labour relations, the difference is far sbarper and bitter. "Our labour force bas gone out of its way to co-operate with us. Things can always improve more but I have no complaints," says Harold





Co-operation by the workforce "can always Improve but I have no complaints," says Harold Musgrove (left) chairman of Austin Rover.

Meanwhile, David Buckle, TGWU Oxford district secretary, claims that "at present it's a waste of time putting a view to management that they don't want to bear"

sion. He is proud of his fac-tories' productivity improveespecially on the Longbridge Metro production line.

But shop stewards are more concerned about their production line power being eroded and about the way that BL's elaborate consultative system, which was set up under the last Government, has been dismantled by Sir Michael Edwardes, current BL chairman. "This has been a dambuilding period for management which bas clawed back 40 years of trade union advance," saya David Buckle, the highly respected Transport and General Workers' district sec-retary in Oxford and a senior

Complaints

"There's practically no shop steward involvement in shop floor targets and conditions," he adds. "At present it is a waste of time to put a view to management that they don't want to hear."

Like many union officials. David Buckle has a list of

tor of BL's Austin Rover divi- lodge with management when times improve and when there is a chance of sufficient shop floor support to make it worth while raising issues which might lead to disputes.

> These claims - and David Buckle's other complaints-are more associated with losing traditional trade union bargaining rights than with the limi-tations of employee consultation and participation evident at Birds Eye in East Anglia. But in all such cases the recession will leave in its wake frustrations that the parties involved may be tempted to try to vent. How serious all this will turn

out to be cannot yet be assessed. Inevitably during a recession most employees are not likely to want to sbare in decisionmaking about cut-hacks and redundancies. Equally their employers are not usually likely to want to share their new-found managerial authority or to slow down their closure deci-

Birds Eye's consultative arrangements do however seem to bave remained intact more effectively than similar systems in some other companies. Like

np its arrangements during the being blurred between consulta-Bullock debate of the late 1870s, tion and negotiation. "It mainand created a series of company

At Birds Eye's Lowestoft factories, where the main business is freezing vegetables, there are two tiers of consultacouncil which meets every two months and monthly departmen-tal or production line consultative meetings, in addition to a higher-level company conneil meets every three months. Representatives for the fac-

tory council are elected by all employees, not just trade union members — mostly Transport and General Workers. This bas led to both union activists and others being chosen, although the factory's full-time chief shop steward always attends by Although auch an arrange-

ment might be resisted in more militant factories, the shop stewards accept this non-union basis, providing the company does not try to deal with nego-tiable matters, such as terms of redundancy, in the council. In some ways the separate identity many groups. Unilever stopped helps the union to stop the lines

tains the union's primary position," say the stewards.

The effectiveness of the council, however, is not clear. Managers certainly have a usethere are two tiers of consulta- ful means of handing over tion—a factory consultative detailed information on matters such as labour projections, marketing plans and sales achievements. This is useful at a time when wide-ranging rationalisation of Birds Eye's different products and locations has coincided both with rapid technological change in food processing techniques and with the recession.

> Lowestoft used to be a primary fish processing centre but this has now mostly been shifted to Hull. The labour force has dropped from a peak of approaching 2,400 eight years ago to 1,500.

The scale of the changes cao be judged by the fact that in East Anglia as a whole the number of managers employed has dropped by 50 per cent over five years to 30.

But while the council bas fulfilled a major communication role, its agenda often includes meeting when 170 redundancies were on the agenda.

However, on one occasion nine months ago, when a council meeting was widened to include all shop stewards for the annual visit of the Birds chairman, more was achieved. The issue was the removal to Hull of plaice pro-cessing—the last fish work left in the Lowestoft factory. This would have caused 150 or more joh losses, and an emotional debate took place. As a result the employees agreed to co-operate in modernising the plaice processing and the company is spending about £300,000 on a new fish grader which will dispense with about 40 jobs.

So on the surface it looks as everyone should be pleased. if not proud, of their partici-pative achievement. But the shop stewards do not believe they have changed Birds Eye's basic policy of shifting fish handling to Hull, and moving out of plaice processing—primary decisions which they had no chance, they say, to influence. They seem to be worried that their victory may be shortlived.

The management helieves more is achieved in the pro-duction line consultative sessions. Everyoue attends. which means there is personal, not just representative, involve-Production lines are stopped for the meetings which are attended by perhaps 10 to 30 people. Here the emphasis is on detailed production results and targets.

The changes at BL have been far more wide-ranging and involve the dismentling of the old consultative system and a forward. dramatic toughening of manage-ment style. Stories are told of managers being abusive not only to shopfloor employees and to union representatives but also to their own managerial subordinates in front of sbop

Few people doubt the effectiveness of such methods in helping to turn BL round; hnt equally, few people can regard them as a satisfactory permanent style of management. David Buckle insists that there have been no significant changes in management style during the past year, despite the pledge by

Control

'Sitewatch'

LEE-DICKENS of Des

borough, Kettering, has developed a simple system to collect information at dis-

persed points on large industrial or commercial sites

and transmit it to a single

display location.
Its "Sitewatch" system

uses a four-core bus cable

from which spurs can be taken at any point to data

The central processor in

the system addresses each outstation in turn and allows

a fixed time for reply; fre-

quency in normally 25 ont-

stations a second.

The information can be

displayed on a light emitting

diode display or on a vdn-

the central processor can be

programmed to take auto-

matic action on receiving a signal. Lee-Dickens is on

collection ontstations.

marshalls.

the data

types of issue—for example the Sir Michael Edwardes during location of cycle racks ap- last November's pay dispute parently dominated a recent that the style would change.

"I helieve that everyone accepts that if they see mana gers being expected to work hard and not being allowed to be incompetent, then they realise incompetence is not acceptable at any level," says Musgrove.

Questioned further about the allegedly rough management style he says: "It has been hard and it will have to stay hard. But at least there is consistency -no one is spared and when it comes right people complimented."

He does not believe there will be a backlash one day. "Why should there be when people have got a sense of pride in what they produce and when we are seeking security of employment for them?" he

In any case, he says that consultation is being restarted. Business review meetings bave been set up at division and factory levels for shop stewards, but these seem to be only exercises in one-way communication.

Austin Rover is also starting a limited experiment in a form of job involvement, taking people from different people from difference disciplines and levels semority in Austin-Rover

tackle a certain problem—like the design and production of

Initiative

Such an initiative is a far cry from the old days of interlocking tiers of consultative committees which actually discussed BL's detailed com-mercial plans. But at least it could be a tentative step

The problem now for companies like BL is that one day there may be a backlash as union activists try to reassert their lost authority. Managers at all levels of industry differ sharply about the size and the seriousness of the risk of a backlash.

But both the Government and the Confederation of British Industry recognise that the constructive development of positive participation schemes could help to defuse the risk of trouble, as well as paving a way for merging managers' new found authority with a more acceptable participative style.

Management abstracts

systems. R. E. Young and H. T. Klahorst in Industrial Engineering (U.S.), Nov 1981.
Defines a flexible manufacturing system in terms of computer-controlled machines and
transfer devices that can process many types of part; lists hard-ware and software elements, describes applications, and explains in detail the software requirements for communication, control and machining.

Portfolio management in diversified companies. R. A. Bettis and W. K. Hall in California Management Review (U.S.). antumn 1981

Examines how ten unnamed companies assess the contribu-tion of divisions ("strategic business units"); finds that this portfolio concept is used as an malytical aid, but — because of the massive commitment needed for implementation—is not used

Pricing new products. J. Thorn in Industrial Marketing Digest (UK), Vol 7 No 1 Argues that for new, specia-lised industrial products, mathelised industrial products, mathematical models and provisional costs are unhelpful in pricing; offered an approach which starts off with a detailed assessment of qualities differentiating a product from its competitors; discusses how a starting price should be modified by market variables such as advertising and agents' discounts.

Integrating forecasts in business strategy. S. H. Hoch in Research Management (U.S.), Nov 1981

Explains how the (U.S.)
General Electric Company
attempts to "control its future"
by analysing opportunities and
threats, evaluating responses. and integrating environmental forecasts with strategy formula-tion; exemplifies the approach

tion; exemplifies the approach with thumbnail sketches of the company's Brazilian operations. Interpersonal skills of leadership. P. L. Wright and D. S. Taylor in Leadership and Organisation Development Journal (UK), Vol 2 No 2 Contends that leadership depends on the use of certain interpersonal skills; describes and classifies them, and gives examples of appropriate/ examples of appropriate/ inappropriate use; relates the ideas to theories of leadership.

These abstracts are condensed from the abstracting journals published by Anbar Management Publications. Licensed copies of the original articles may be obtained at £2.50 each (£3 each from September 1, including VAT and p+p; cash with order) from Anbar, PO Boz 23, Wembley HA9 8DJ.

TECHNOLOGY

First commercial versions of Sony's new disc player are off the production line

Europe waits for Sony's little miracle

BY ELAINE WILLIAMS

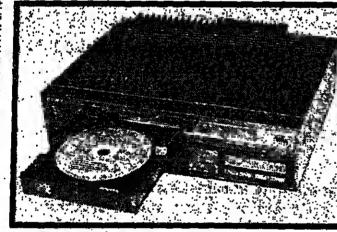
SONY REVEALED the first production versions of its revolutionary compact player this week. Then it cast a shadow over this achievement by announcing it is to delay the afull launch of the system in Europe until next year.

'x' Compact discs, jointly developed by Philips in the aNetherlands and Sony in Japan, saim to provide sound quality presently unobtainable with conventional hi-fi systems. Each fidisc, measuring only 41 inches in diameter, can store an hour's smusic on a single side, coded digitally in the form of microscopic pits.

of These tiny pits — formed in a spiral some 2½ miles long — are buried beneath the surface of a protective plastic layer. The information on the disc is read toy a laser stylus within the disc player. The disc lasts longer than conventional LPs and is unaffected by surface scratchea dust or finger marks.

Sony attributes the delay in Laser introducing the disc system to the inability to produce sufficient disc players to support the launch. Philips has also agreed to postpone its European launch to co-incide with Sony. Mr Tim Steel, Sony's UK the disc.

general manager optimistically



Preview of the new compact disc player . .

estimated that there will be a several market of about 250,000 disc ensure that the laser can track players in the first year of the the tiny spiral of plts and to

However much will depend on the avallability of music which can be played on the disc system. Few record companies are yet committed to

Sony's first model contains

microprocessors provide the user with informa-tion about the disc being played.

can be programmed, and a digi-tal read-out tells you which track is being played. In future supply recorded material for it can be displayed on the

panies about the compact disc.
Only two major record combines, Polygram—partly owned
by Philips—and CBS-Sony in
Japan have invested and are

The order of playing the disc discs, the titles of each track will be encoded on the disc so

Optimism Despite Sony's optimism, there has been very little euphoria from the record com-

now making compact discs. Polygram has spent DM 100m in its plant at Hamburg which will have a capacity to make 5m discs a year. A modest compact disc making plant will set a company back £7m to £10m because compact disc making is a sophisticated process.

record industry estimated that in 1980 alone it lost £200m in revenue from home taping of

the disc—whenever it does arrive—will be timely for the record industry which has been ultraviolet light. A powerful facing severe difficulties in relaser beam cuts out the tiny cent years. Sales of records bave microscopic pits which corres-declined over a seven year pond to the digitally encoded period from 91m to just over audio signal. 67m in 1930 in the UK alone. After undergoing a silvering This decline has been brought process, this glass master is bout by the combined effects pressed against a nickel plate about by the combined effects of the recession, bome taping

glass plate with a photoresistive

material which is sensitive to

to form a reverse copy. This of LPs and pirate tapes. The nickel master is then used to make several production stamp Discs can then be made using

injection moulding technique or stamped out in a similar way to conventional discs. stamped, the discs are covered in a thin layer of aluminium so it can be read by the laser stylus and finally a protective plastic layer is added.

Reluctance

Many record companies are reluctant to invest in this technology before the market is really proven though there is some indication that several other major companies are likely to make a commitment to compact disc shortly.

Certainly the long term future

of compact disc will depend on player.

The process involves preparation while range of ing a master disc by coating a available to support the players.

Welding Torvac's digital

programmer

TORVAC RAS announced a new range of vacuum and electron beam welding equipment.

The Series H . vacuum furnaces are horizontally loaded and offer options on the size of the working zone and on the method of vacuum pumping.

They are also fitted with a new digital programmer which allows for the specification of complex processing sequences—for example, harden and double temper, vacuum hake out followed by hraze under hydrogen followed by cooling under inert gas or letting up to air and numping down again in the same cycle.

The programmer is compatible with contemporary temperature controllers made by Enrotherm, Honeywell, Leeds and Northrap. All Torvac vacuum furnaces

are offered with either turbomolecular extra performance diffusion pumps.

 Electron beam welding equipment from Wentgate of Huntingdon Cambridgeshire, is now being exported to the Eastern Bloc. The DW 602 electron heam welder has been sold in Czechoslovakia and exhibited in Moscow.
Wentgate claims over 120 of

its machines are being used in production world wide. Torvae is on 0220 2646; Wentgate on 0408 63984.

Memories

Rodime and Comart drive disc pact

RODIME, THE UK's only indigenous manufacturer of the 52 inch Winchester disk drives which are seen as the key to personal computing power in the future, is to supply its drives to Comart for its "Communicator" range of microcomputer

These Winchester drives

are small, tough and comparatively paratively cheap when measured against conventional computer storage.

David Broad, Comart md
said: "We have wanted to increase the British component content of the Com-municator for some time now but were not prepared to make sacrifices on quality or

The Rodime drives give capacities of up to 26Mb with fast access. More from Comart on 0408 215005.

Office

quantity."

Vdu top file tray

The paperless office may be on the way . . . but not quite yet it seems. If you want to use the top of your visual display unit as filing space rather than a mere dust trap, Inmac of Runcorn, Cheshire, offers a VDU tray in acrylic plastics. A slot in the front allows the contents to be picked np easily.
It measures 12 im by 16 ins

by 21 ins and Immae claims It will fit all makes of VDU except those from Lear

£19.00 each or £15 each if three are ordered. Inmac is en 69285 67551.



Electronics

New zero force connectors

ITT CANNON has lannehed a new series of zero force connectors designed for 10,000 mating/unmating cycles with-ont failure.

Designed for low cost, blah performance multiple wire power and signal products, as many as 2496 contacts can be

Crimp or wire wrap contacts are available from 60 to 2496 contact positions. The plug and receptacle do not touch during mating until the connector haives bave been fully engaged.

Current rating, cight amp; contact resistance 15 milliohms maximum; more from IIT Cannon on Basingstoke

Electronics

How to kill static electricity

spells death to silleon chips, which is why electronic circuit assemblers wear antistatic clothing and earth themselves and their working tools before handling microelectronic components.

Linvar of Leicester offers a range of equipment to defeat static electricity and create a statie safe work area.

The equipment includes a work surface which con-tinually drains charge from any conductive object placed on it, a wrist strap to integrate operators into the grounding system and shipping tabes. Top of the range is a complete conductive bench unit. More on 0533

A company whose customers hope never to use its products

sort of equipment its customers a relatively small company it hope they will rarely have to faces fierce competition especitems for oil production plat- panies such as Baker CAC which forms and pipelines.

In October Brisco, a priva-tely owned UK company, with a turnover of around £5.5m, will launch a new type of shutdown

valve too, Otis and Autocon, part of Camco,
Despite the opposition, Brisco
Engineering has won some system for pipelines using a valve it had developed for its wellhead control system.

The new break-line valve system can detect-through a an system of bydraulics -variations in pressures which might indicate a problem somewhere along

p the pipe. began installing well-bead The new system is part of safety systems and from this

emergency shutdown sys- ally from the U.S. with comrecently introduced a control

Engineering has won some notable success with major customers such as Phillips and BP in the North Sea and recently won an order to supply shatdown systems for the Bomhay High Field in India.

an offshore oil engineering service to the growing number The valve system nearest the of gas platforms in the southern break in the pipe will automatic part of the North Sea. Five years later, the company

BRISCO Engineering makes the Brisco's expansion plans, but as developed a valve which it valves for the production well tually find its way to control believed was better than those open, it could buy from established manufacturers. Its first major customer in the North Sea was British Petroleum.

Brisco: where 'shutdown' is good business

On the platform itself, is con-

which holds the bydraulic fluid for the pump which maintains The company began operat the pressure in the control ing in 1968 mainly to provide system and the complicated network of stainless steel pipes which are connected to ensure that all valves operate in the right order. They are, in effect. the logic control system for the system. The pressure in the hydraulic system holds the

Each well-head usually has

three control valves—the master, ring valve and the down-hole valve. The master and ring lighter, cheaper, low power and valves sit on the platform for simple to maintain." Mr Godier Well-head safety systems are valves sit on the platform for very simple in principle, but easy access and can be operated said. In addition they can be often complex in practice be to stop production for a variety easily linked into the platforms

The downhole valve, as its tained the reservoir oil tank name implies sits on the sea-bed and is the last line of defence. if anything goes wrong. The ahutdown system has to operate within 45 seconds of the emergency button heing pressed. Companies could quickly lose a reputation if their system did

not work. Mr Alec Godier, Brisco's technical director, is in no doubt that microelectronics will even-

sofety shutdown systems planted on the seabed. "The advantage of such sys-

cause one oil platform may be of reasons, such as regular main-connected to 50 well-heads. tenance. system and the whole system system and the whole system can be changed by computer programme. There are still arguments in

the oil industry about the use of microelectronics in the wellhead itself. The circuitry has to be to very rugged to survive the harsh environment. However, Brisco Engineering is already looking at the potential for electronic control so it is ready when that day comes.

The problems of reputation are as various as reputation itself, but even so the domestic view of the expatriate is always rather a special case, and one unlikely to be eased by the passage of time. Given a flying start before the removal, and that removal to prove all but complete, only sharpens the poignancy, the equivocality of it all. Is the artist ours any more, or can his work be claimed by others, just as we assume so readily that of our own more permanent visitors? Whom can we set him against, when for so

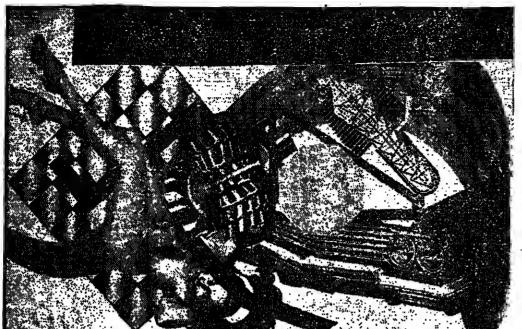
12-22

the work any good any more?
The retrospective comes to our aid, of course; and Peter Phillips is now most usefully presented to us just so in an exhibition lately put together by the Walker Art Gallery In Liverpool and now out on tour (Museum of Modern Art. Oxford until October 3—and then on to Newcastle, Edinburgh, Southampton and finally the Barbican). the Barbican).

long we bave seen so little? Is

Phillips was one of the brightest of those young stars. Novae I suppose, that rose in the firmament of British Art in those conspiciously atar-struck early 1960s, one of an extra-ordinary group that became established. even national, figures while still at the Royal College, the stuff of earnest television documentary, colour

aunplement and glossy com-pendium. Pop Arr was news, and their work in the galleries. And like all the others, Phillips was seduced abroad, especially at first to America: but whereas they have all come and gone and come back again, and their work with them to record their progress, though he high enough over the years to came hack to Europe, be seems justify this present exercise, never really to have come home. may now put on some weight.



Custom Painting, No 5 1965) by Peter Phillips

Rather be settled in Zurich, and though he has since shown widely enough abroad, here we have bad one dealer's show in 17 years and only the occasional participation in prestige assemblies and reviews.

There is no reason at all why things should be otherwise, but auch is the background against which RetroVision, as the show is called, must be seen. It pre-sents indeed the only chance we have ever bad to see a sub-stantial body of his work, and to see it clearly and see it whole A disembodied reputation, which has certainly remained

or perhaps not.

The first thing to say is that the earliest work, product of the Royal College of Art, and in fact the substance of his Diploma Show in 1962, still looks very good, evidently a unusually accomplished debut. The imagery is thrown together easily, almost casually at times, in collage-like association, the references a lively confection of that first post-war generation's popular heroes and symbols, founded not in direct experience but a kind of dream of American culture picked up

through songs and films, juke boxes and pin-tables.

Mel Brooks apparently started

vriting a musical called Springtime for Hitler and turned it

into the film The Producers when be realised the musical

had no chance of success. The

Producers hecame the story of Zero Mostel's larceny in selling

the musical many times over because it was doomed to failure

-and then baving a smash hir

Des McAnuff, writer, com-poser and director of The Death of Von Richthofen as Witnessed from Earth, bas another Spring-

time for Hitler on his hands at the Public Thealer. This First World War musical depicts Manfred Von Richthofen, the Red Baron German flying ace.

deliberating on April 20, 1918

about his future after confirma-tion of his 80th kill in hattle.

Lured into the battlefield by an

inaccuracy in the kill confirma-

tion. von Richthofen is con-

fronted by a German lance cor-

poral who says the flying ace's

destiny is to take over Germany,

sue for peace and rebuild the

decides to take to the air once

more and dies at the hands of two foolish and scared Austra-

lian infantrymen, whose antics

country.
Instead. Von

that lands blm in jail.

English to those of us who tasted it in its own time. As paintings they are curiously complete and definitive, the handling of the oil paint as

straight-forwardly assured as the imagery is unequivocal. And then suddenly, almost overnight, there came the airbrush, and with it the adoption of a larger and technically more ambitious scale (or so it may have seemed), and the abandonment of the personal touch of brush and oil paint. Billboard imagery was now given the billboard treatment in manner and format, disparate iconsboxes and pin-tables, pin-ups, car parts, exotic birds, demonstrated that the imagery fly wheels, springs and cogs, all it carried could be all but European, it is unmistakeably overlaid and floating free invisible — a nice paradoxical

may bave harked back to Leger's later compositional ploys, but quite lacking anything of bis studied painterliness.

Philips has always been tech-nically scrupulous, but for the 10 years and more after 1965 or so, it would seem that his hard, impersonal, uncompromising finesse was all but the entire

point of the exercise.

Air brush in hand, he took it ever further, and by the mid-70s was using specifically photo-graphic rather than more generally graphic reference, and making particular essays in photo-realism: the imagery, moving on from jumhled mosaics of material culled from the girlie glossies towards a more ambiguous and sharply realised symbolism of snake and parrot, mask and flower. But still, whatever his inten-

tions might have been, the actual experience of his work was now stuck in a dangerously was now stuck in a dangerously split and one dare any sterile condition. It had taken this comparatively late work perhaps to make the point, but it is one which holds good for all the central period in this particular career. To put it baildly: far from being at one with each other, which is the desired condition in all art, technique and image were now entirely at odds, presenting the viewer with a stark Choice of attention. On the one hand the image was so strong that it took over abaolutely, quite free of what it was and how it was made which were now matters of utter indifference; on the other the technical facility was so self-consciously and assertively

against a schematic, geometric stale of affairs. But the signs ground: a free association that are that Phillips at last chose to move out of the corner he was in That early work bad none of this division to it, and now the latest work begins to bear certain decided similarlties to it, all most encouraging.
It is back to the oil paint and

the modelled, manipulated surface, the use of the hrush; and immediately the painting takes on a new life and particular identity. And is still uncertain, it has moved far away from the dominating, external icon, and is now much more of itself, a fragmentary, tentative, in parts abstracted kind of stilllife; a plece of cloth closely observed and carefully modelled set against what might be a fragment of pottery, or a corru-

gated card, and all pointed and pulled together by a bright, flat strip of primary colour.

Phillips' continuing uncertainty is atill evinced by the violation of the picture surface in his most recent work of all, bringing the elements in his bringing the elements in his compositions forward of the picture plane into actual space and with them all the complica tions and ambiguities of relief

still to be resolved.

Time enough for that, but I cannot help feeling that a painter's problems are only to be resolved back on the surface and beyond, within that illusive pictorial space-the real world a snare and a delusion. What is good, however, is to see a once natural and confident painter turning to ask himself again a

true painter's questions.
Our first interest in Phillips
survives, I think, on merit, but
only now is it possible to say as much: five years ago would have been too soon, and he still bas the substance of his caae to



Mike Grady and Gay Hamilton

Beyond Therapy/Latchmere

Rosalind Carne

psychiatrists are guaranteed to produce at least a couple of self-conscious titters among a London audience. It would certainly be unduly optimistic to hope for anything more from this feeble comedy by Christopher Durang.
The play was commissioned

and first produced by New York's Phoenix Theatre, and occasional good lines and the manipulation of encounters hint at a dramatic lalent gone to waste. But what we are offered s a satiric treatment of very familiar raw material, whose raucous "Carry On Shrinking" flavour rapidly dwindles into

nothingness.
Tom Conti is the director, but he fails to transmit much of his own talents, drawing out five crude caricatures and only one convincing character. The sharp, impersonal style is out of place when there is nothing sufficiently clever or funny to compensate for lack of personal interest. Only Gunnar Möller's German therapist carries any suggestion of authenticity. Predictably, his own problems are quite as severe as those of his paticots, who usually land in his bed after the second session. His current victim is the unhappy Prudence, but she

Lonely hearts and randy begins to tire of the expensive entanglement and seeks salvation elsewhere by answering a scries of personal ads.

She mccis Bruce, a confused hisexual with a penchant for instant analysis and vulgarised psycho-sexual jargon, Bruce, too, employs a paid liatener, but bis lrusty Dr Charlotte proffers more mouth than ear as she rattles off her own consuccour to her stuffed Snoopy

Despite its modern pretensions, the piece is peppered with stock targets, like the hypersensitive homosexual, hounded by his Interfering mother. She calls him up in Bruce's apartment, and the focus of interest switches between its sleek Manbattan elegance, the two consulting rooms and a restaurant. This is neutral territory where several ill-assorted egos collide with considerable noise and fluster in a climax of group therapies.

If you can sit through two hours of this you might enjoy resuscitation via a light meal in the Gate at the Latchmere's own excellent reslaurant. Good cooking, reasonably priced, and served plping hot by very friendly waitresses.

BBC Symphony/Albert Hall

Richard Joseph

The centreplece of Friday Music gives one the impression night's Prom was a revival of of setting up a wide ranging Oriondo's Music, composed in 1974 by Glies Swayne. It is, for a first orchestral piece, a more than promising achievement. The music is clearly, audibly structured into three neatly organised movements: Faofare, Lullaby and Childsplay. much of the first two move-ments it rises and falls in predictable waves—the regular use of these contrasts, rather than the exploration of organic growth, seems to be Swayne's method. Ever-returning E flats and C's are used as tonal anchors, but the material is not defined or re-perspectived by this technique. Though Swayne uses many chords of similar construction I suspect that this

is the result of a narrow intervallie vocabulary rather than tightly organised thinking. But the handling of the The cellist Y_D Yo Ma acted the orchestra is always fluent, title role very well. His highest Especially good are the harmonics did not speak clearly, frequent juxtapositions of but otherwise he proved a

framework and then filling it out rather too tastefully. John Pritchard prefaced their secure performance of the Swayne with an unexceptionable account of Mozart's Prague Symphony: suioothly played, dynamically well-proportioned

and a little phlegmatic. The hulk of rehearsal time had clearly gone on Strauss' Don Quixote. Pritchard's operatic experience has given him a solid sense of priorities. Primary voices are brought to the fore, secondary voices are cleanly articulated, loose ends are then tidily swept into the corner. And this works extremely weil for such an overwritten piece. A clear guiding hand is needed in order to shape its thick orchestral textures. frequent juxtapositions of but otherwise he proved a speeds (for example, strings worthy central focus for the running, woodwind marching, difficult instrumental solos that brass crawling) in the opening abound in this tiresome tone Fanfare. Overall, Orlando's poem.

The Creation/Elizabeth Hall

Max Loppert

The "good week for Haydn to the assembling of such in-lovers in London" that I fore strumental forces and the use told on this page last week of the splendid Westminster turned out to have bad greater attractions on paper than in its actuality. Following the small-scale Prom performance on authentic instruments of The Seasons came Friday's kindred account of The Creation—with two of the Prom solo singers, a period orchestra of different title but mostly identical personnel, and a similar reduction of choral numbers. In the smaller South Bank hall, the greater immediacy of impact lost to the vast spaces of the of choral numbers. In the smaller South Bank hall, the creater immediacy of impact lost to the vast spaces of the Alhert Hall should have been ensured. Given an account of the work as nearly inadequate as reputable singers and instrumentalists could contrive to Anglican-curate vocal manners).

Classical and pre-Classical music longed stay in becalmed waters. normally conferred by the Denatured Hadyn, whatever its name of the Academy of Ancient source, character, or imprima-

turned out to have bad greater Abhey Choir trebles in place

as reputable sincers and instru-mentalists could contrive to make it, the opposite was the final impression. final impression. — numbers for re-tuning (though The stamp of musicological this hardly guaranteed accurate rectitude in the execution of intonation), this was a pro-

Music may bave extended bere tur, is unwelcome. London Contemporary Dance

London Contemporary Dance titled new work, sponsored by Theatre, will open its three Barclays Bank International, week season at Sadler's Wells will be on Tuesday, November Theatre with two works by 30.

American choreographers: F
Esplanade by Paul Taylor and bee The Broad by Richard Kuch. Both will receive their London premieres on the first night of the season, Tuesday, November 16 which will be a benefit performance in aid of the Student Scholarship Fund of the

London Contemporary Dance School. A new work by Robert Cohan, Chomber Donces, will be given its London première on Tuesday, November. 23 and the British première of Christopher Bannerman's as yet un-

been taught to the company by Eileen Cropley, the first British dancer to study contemporary dance at the Graham Studio in 1963. It is danced to Bach's Concerto No. 2 in E major and Concerto in D for two violins. The Brood is based on Brecht's drama "Mother Cour-age and Her Children" and presents a point of view some 15 years on from the play's conclusion. The music/sound collage is by Pierre Schaeffer,

HAYMARKET THEATRE ROYAL 930 9832. From Seat T LEDNARO ROSSITER In THE RULES OF THE GAME by Luly prendelo. Directed by Anthony Quayla.

Theatre at Sadler's Wells

in a realistic foxhole rhroughout the play are contrasted with the solemn and self-important dig-Paul Taylor's Espianode has nity of the German officers ensconced in a French mansion. Songs like "Good Luck" and "Stand Up the Fatherland" capture the martial imperative hellicose marching music. while the flapper era and Eng-lish music hall are also evoked. and the work is designed by bubble - headed Robert Joy). Francois Barbeau.

The Death of Von Richthofen/Public Theater, New York

Frank Lipsius



A scene from 'The Death of Von Richtofen as Witnessed from Earth'

gives realistic dimensions to the squalor of a front-line bunker along with the painted ceilings in the French château. Platforms appear for the two sides to do their more flamboyant musical numbers and the production boasts extraordinary props. including a full-sized Fokker plane with everything but tthe wing-

span. A precisino-directed cast is the latter because the Australed by Robert Westenberg as lians intend to be a music-half the Red Dragon. His hard but duo after the war t" We need sympathetic manner perfectly medals to get famous," insists suits a role for which he does a Mark Linn-Baker in an excellent magnificent job as a stand-in, Australian accent to his equally working tightly and expressively

Douglas W. Schmidt's set Hermann Goering, played by Hitler's big chance. Bob Gunton. The laoce-corporal in the field

who Inspires Von Richthofen's McAnuff's flair and daring, but cunning hy Mark Petrakis. Von just as Mel Brooks predicted 20 Richthofen's death is obviously years ago,

The similarity with Spring-time for Hitler is a credit to political ambitions is Adolph the play's very venturousness Hitler, played with courageous got it sayaged by local critics.

Pina Bausch's first London season

from Wuppertal will present been seen this year at the two productions at Sadler's Adelaide and Holland Festivals. Wells between September 14 Sadler's Wells in association and 25. This will be the first with Michael White and with visit of the company to London substantial support from the with his adjutant played by visit of the company to London substantial supp Jeffrey Jones and another pilot, and they bring 1980 and Kon- Goethe Institute.

Pina Bausch's Tanztheater takthof, two pieces that have

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Fully air-conditioned theatre. SHAW. 01-322 1394. National Youth Thostre in Peter Tarson's Eole Farce THE BREAO AND BUTTER TRADE Last 6 Osys. Evgs 7.30. Mai Sat 2.30.

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F.T. CROSSWORD PUZZLE No. 4,955

ACROSS

1 Left in carriage and pair (6) 4 Wise step in the present era

9 Ploughed a mowed field (6) 10 I've turned to lemon squash, not a good sign (4, 4) 12 Gambling game permitted in

the course of a journey (8) 13 They're made to measure (6) 15 Pins of revolvers? (4)

16 One who feela the heat for . one who feels the cold (7) 20 Book covering part of N. Africa (7)

21 Labour staged a walk-out? (1) 25 Not many people with a dog will keep one indoors (6)

26 It may be put on disc (8) 28 Without it there would be total ignorance (8)

29 Chews a sort of nut (6) 30 A group of soclety women

31 Got up smar(ly (6)

DOWN 1 Welsh river name (8) Z Glrl thought to be like Oueen Victoria (8)

3 Given the sack (6) 5 Decorale with flags? (4)

6 Getting cool and rude treat- 22 Fights for food left over (6) ment, blusbed (8) .7 Band member with permit

(6)

8 Man enters another order (B) 11 Rising damp in place for

cooking (4-3) 14 Fall of rotter in law-suit (7) 17 Just the chap for transplant-

ing trees (8) 18 The joys of French windows 19 Don't come - give support elsewhere (4, 4)

23 It takes a good deal to satisfy him (6) 24 Not just lacking in beauty

> 27 It may be shot for security reasons (4)

The solution to last Saturday's prize puzzle will be published with names of winners next BRACKEN HOUSE, CANNON STREET, LONDON EC4P 4BY Telegrams: Finentimo, London PS4. Telex: 8954871 Telephone: 01-248 8000

Monday August 23 1982

A chance for U.S. diplomacy

the devastation in Beirut has over the Palestinian problem, ended and the first contingent the new presence of PLO units chance must be seized to make now accept them, and the up-out of these episodes a turning surge of fundamentalism could point in the search for a prove a dangerous one. to the Palestinian problem. This is not another despite their abject failure to hollow appeal for the unattainable: there are practical reasons wby Washington should not now settle back into a mixture of relief and disillusionment, and why the Arab countries should not argue for violent retribution against Israel for what has

Comprehensive

age

One danger is that the U.S. will be sidetracked by the inevitable wrangling over the withdrawal of Syria, of the PLO. of the Israeli army and of the peace-keeping forces from Lebanon Certainly there is scope for many months of diplomacy over this problem. But it must he solved in parallel with a new initiative on the derailed and discredited search for a comprehensive settlement to the core problem in the

The moment is ripe inside the U.S. because a new Secretary of State will be dealing public and political opinion made more malleable by Israel's siege of Beirut. Perceptions have been jarred by the toughness of the Israell offensive and will be more receptive to the reworking of Camp David approach which is needed to win it a irbroader spectrum of Arab

In the region Itself the U.S. will do well to build upon the helated success of Mr Philip Habib's mediation, on his ability lo persuade a range of Arah states to accept the discersed PLO, and on the marked contrasi hetween the capacity of the U.S. to influence evenis and the incapacity of the Soviet Union to do anything to icssen the humiliation inflicted on the

Inaction could well prove instability in Arab states: the

of the Palestinians has left, the in the Arab countries which will

Paradoxically It is the Arabs. react decisively to the invasion of Lebanon, who have the grealest opportunity to make something out of the disaster. For the first time in years the Israelis are firmly on the moral

It would be an ideal moment, therefore, for a fresh attempt to convene an Arab summit and to demonstrate an Arab consensus behind a more explicit version of the proposals put forward by King Fahd of Saudi Arahia. This would have to recognise Israel's right 10 exist and also the Palestinian right to a state on the West

The PLO, too, need to take the initiative in persuading the U.S. that withdrawal from Beirut marks the end of their military campaign against Israel and the beginning of serious diplomacy. If Washington is to roncede that the PLO is the tegitimate representative the Palestinian people, the PLO will have to satisfy the criteria laid down in the Kissinger memorandum 1975: recognition of Israel's right to exist and acceptance of Security Council resolutions 242 and 338. The Palestinian National Charter of 1968 would also have to be amended It is a tall order by past standards of Arab co-operation.

But the chasienting experience Arah impotence over Lebanon, combined with the fears sown hy the Iranian campaign against Iraq may well have concentrated Arab minds.

There remains a great divide between Israel's minimalist interpretation of the Palestinian autonomy described in the Camp David agreement, and the Palestinian state demanded by Arab nations still wary of admit costly lo U.S. interests. Arah ting that Israel has a right to humiliation has lended to be survive at all. A completely -followed by Arah backlash and fresh initiative by the U.S., and a peace offensive by the Arabs Egyptian revolution of 1952 might begin to hridge that gap after the Iscaeli victory in 1948 and create an offer which Israel is a case in point. The com-would find hard to reject.

Dumb insolence on the shopfloor

Street as their Instance are more when our Inslance—the 24-hour son why employers cannot strike by Fleet Street electricoun on the ambiguous win for clans two weeks ago—still the NPA being a victory for all. awaits a decision by the electricians' branch on whether or not they will pay the small fine and Publishers Association against Mc Sean Geraghty, the branch's

Militancy

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The electricians went to court and fought the action: the logic of that initial recognition of the court's competence in the matter (a) the militancy of the branch. one of the few far left pockets within the Electrical and Plumbing Trades Union; (b) the tradito take a strong stand; and (c) the apparent eagerness of many in the TUC-especially the printers—to produce a martyr for the cause of Tebbit-

It can he argued that if such

try is willing to recognise the competence of the court over a been heard. morally emotive issue such as a sympathy strike for health service workers, the the legislation -Mr Prioc's 1980 Act, of course. nol Mr Tebbit's Bill - has already bedded down. It can duced by Mr Heath in 1971.

Prior Acl, which was concerned above all the secondary every battle with employers and (including sympathetic) action the Government since 1979: has not deterred many thousands their militancy has largely been workers, engineers, public ser- campaigns have amounted lo vice workers and others from little. But employers and taking limited action in support of the health service workers, these lost battles mack a final and it has not encouraged any retreal of union power. The employers other than the NPA unions' collective strength. to do anything about it.

the sympathy has been of a bedding down of whal now Ilmited kind—a day here for one seems likely to be only the first group, a half day or a lunch third of the Government's emtime picket for another. Still, a playment legislation of this parday's pay lost is £20 or £30 out liament does not mean it has of a family budget: in some pul down roots strong enough areas such as the civil service to withstand a storm, if and -it could also mean disciplining when it blows.

GENERALISATION on Indus- and black marks, even the aack. trial relations which take Fleet That is why it has been the stronger, better paid and more than usually prone to error, secure groups which have been This is especially the case to the fore, but it is also a rea-

For It is not the law which

has dampened militancy among the unions: it is unemployment. large costs arising from the Dole queues 3m long have en-action laken by the Newspaper sured that Prior's law has not been tested and that Tebbit's law will probably begin life quietly. Oddly, while Mc Geraphty was demonstrating the limits of Fleet Street's defiance publicly. Mr Frank Chappie, his general secretary, was defining the, mood of the workers privately to Government Ministers should lead them to pay its at the last National Economic penalty. That is notable, given: Development Council meeting. Following on from Mr Heseltine's more celehrated anti-Covernment outburst. Chapple corrected an eaclier assertion by Mr Nigel Lawson. the Treasury Secretary, to the effect that the shopfloor mood was now one of realism by asserting that it was merely one of dumb insolence. Dumh insolence is only dumb when the whips are cracking: when they a union branch in such an indus- are put away, It finds a voire. the more bitter for not having

Challenge

The fact that it is fear of the dole rather than respect for the law which cestrains the unions also be argued that the use of is an important difference, even the normal coucis-in this case if it produces, in the short run. just down the road from Fleet the same result. For when the Streel-is clearly a much better economy picks up, or when the tactic than the elabocation of a fear is replaced with active renew instrument such as the sentment, the law may be Industrial Relations Couct intro- exposed to a challenge more fierce than any seen in this But that is all which can he country since the war—includargued with any confidence. The ing the events of 1972 and 1974.

The unions have lost almost cailway rhelorical and overblown; their Government cannot assume that though latent, is still the It is perfectly true to say that greatest in civil society. The

was President Ronald Reagan's verdict on the past Reagan's verdict on the past seven days as he left al the week-end for a delayed two-week holiday at his Californian ranch. "fiving high." in the words of one of his senior aides.

With some favourable economic news al last and a record

COTHE MOST rewarding

week we've had." That

Wall Street rally—not to men-lion the start to the PLO evacuation from Beirut and a deal with China on Taiwan-Mr Reagan clearly had cause for satisfaction. Most gratifying of all, though, was Thursday night's dramatic Congressional vote in fayour of his \$98.3bn three-year tax blll, giving him an unbroken string of budget victories and a dazzling reaffirmation of his powers of political persuasion.

If there was a fly in the ointment, it was the knowledge that 89 Republicans In the House of Representatives had voted against his bill in the most serious right-wing rebellion of his administration. The White House is hoping that the twoweek Labour Day recess will allow passions to cool. But the fact remains that Mr Reagan won his victory at the expense of opening up a gaping rift in the Republican Party over fundamental issues of economic

who until only a month or so ago were his staunchest aupporiers are feeling bitter and beiraved Pure supply-siders like Congressman Jack Kemp of New York argue that the bill represents a "dramatic U-turn" -if not the total and ahameless abandonment of the whole tax-cutling theory of Reagonomics tised ovec the past 20 months. Mr Reagan has spent most of

the past three weeks insisting —to individual congressmen, local audiences and finally the nation—that this is just "plain nogwash." Indeed, he refuses even to call his revenue-raising measure a tax increase, Rather, largely designed to correct unfairness in the present system. Eveo with its passage, he maintains, Americans will still benefit from the largest tax cut in history—to the tune of \$355bn over three years. Above all, be has been drumming out stage the message that the bill repre- To sents absolutely no change in the overall philosophy and policy on which he was elected. The bill is simply a refinement programme initiated last sum-

mer. Mr Reagan acgues-almost as if it would have been necessary all along. However, he admits that action to raise Yet this is the same smiling

higher government spending tical authority

Unemployment

THE U.S. ECONOMY

A taxing victory for Reagan

By Reginald Dale, U.S. Editor, in Washington

MATEST MORATORS

Budget deficit forecasis: (1) estimate in June hudget resolution assuming no corrective action taken; (2) estimate by independent Congressional Budget Office, assuming Reagan (ax and spending programme implemented; (3) Administration's official forecast, assuming Reagan programme implemented.

and less private investment. He hacks of the American people." His existing policies of tax and spending cuts would reduce the deficit and, in time, climinate It altogether. Mr Kemp and his fellow supply-siders acclaimed that speech with as much vigoue as they are now castigating the

What worries them is the ahandonment of one of the most nomics and the precedent li may have set for the future. They say that however the bill is described. It still takes almost \$100bn out of the private economy at an extremely delicale economic and political

To an extent. Mr Reagan himself let the cal out of the haz. He admitted publicly that he had to "swallow hard" hefore giving the bill his backing, and of the vast three-year tax-cutting initially had no intention of mounting a major personal campaign for what he himself acknowledged to be an unpoputo reduce budget deficils, so as to bring down interest rales and unemployment and spuc economic much as two to one in the House of Representatives, that he is used to rise above party alleglance and that the bill was heading for a conomic preconceptions "for massive defeal, possibly hy as the sake of America." For the much as two to one in the House of Representatives, that he is the interest of the sake of America. The interest of the sake of America.

His decision to do so was one Ronald Reagan who only last of the biggest political risks he January was solemnly proclaim has taken so far. By committing ing in his State of the Union his prestige and that of his office message that higher taxes dld to the battle, he ensuced that not mean lower budget deficits failure would have raised simply encouraged serious questions over his poli-

The winning over of indivi- were laid in Congress, the Management and Budget (OMB) did not want, he said then, to dual congressmen, one by one, administration was predicting balance the budget on the proved far more difficult than in an early, strong economic the heady days of last summer. when he scored his first speciacular congressional budget victories. In the end, a quite different coalitioo emerged.

Last year, with the Republican party united behind him, he only needed to seduce a relatively small number of rightwing Democrats. This time. The tax cuts would be with the unusual support of matched by spending cuts, re-

recovery, helped along by tax ruls or the expeciation of them. People would work harder and save more. The money saved would go, into investment in modern industries where the workers would be working haroer under the incentive of the tax cuis.

The administration has been plagued by scepticism over its budget deficit estimates

mainstream Democrats and the Democcatic House leadership. he had to enlice a much larger number of his own dissenting Republicans into the fold.

If there was a dominant theme it was the need to rise Reaganomies had falled and that the Democratic party was worst excesses.

Just over a year ago whenlike wrong: foundations of Reaganomics

ducing the weight of governmeni. deficits and interest rates brought down, and the money somehow found for the biggest defence huild-up American peace-time history. With the foundations of the wave of confidence would sweep through Wall Street and the husiness community.

Reality, of course, has been cruelly different. It is emough to take a look at the administration's official economic assumprallying to the support of a bill tions in the July 1981 that would remove some of its mid-sessinn hudget review, and compare them with this July's, It was not a hard case to make, to see how far thlogs have gone

In July 1981, the Office of

certainly over-estimated the influence of the tax bill on the dramatic behaviour of Wall Street last week. The other factor in the hudget equation, a further \$280bn of spending enta over the next three years, is only just beginning to win congressional approval.

A first \$200n of the cuts went

administration, typically, almost

through last week, and Congress will probably live up to its June commitment to supply its share of the total \$280bm. But almost half of what remains to be found is not subject to congressional action.

Much of the rest must be found by the administration in the form of money-caving schemes such as a trackdown on waste and fraud, better programme management and revenue-raising activities like selling offshore oil and gas concessions. Many private economists are doubtful whether the \$280bn total can be reached in this

Another major element of un-certainty is the behaviour of the economy in the months ahead. Relatively minor morements in unemployment or interest rates, over which neither Congress nor the administration has any direct control, ean have a dramatic effect on the deficit. The administration is, once

again, making optimistic noises about the imminence of economic recovery—although, as Mr Reagan said in his televised appeal for support last week, nobody should expect a "sud-

den boom or upsurge."

Mr. Donald Regan, the
Treasury Secretary is nudging the Federal Reserve to open up the throutle an the money supply between now and the end of the year in help the longawaited upturn along. It would be nice for the administration if real signs of recovery, accompanied by lower interest rates and at least some downtien in unemployment, could materialise in time for the mid-term November elections.

was assuming an increase in Grass National Product in 1982

of 3.4 per rent. This year it puts the same figure at -0.7 per

Average unemployment for

1982 was forecast as 7.0 per cent. It is currently at a post-

war record of 9.8 per cent, with

the expectation of an avecage

91-day treasury hills were pro-

jected at an average of 10.5 per

cent for 1982. This year the same figure appears as 12.0 per

On the inflation front the

news is better. Last year's fore-cast of a 7.0 per cent year on

year increase in the consumer

price index in 1982 has been trimmed back to 5.9 per cent

reflecting the administration's

main economic success story so

trast of all is in the two budget deficit forecasts. In July last

year the OMB estimated the

fiscal 1982 deficit at \$42,5bn. a

figure the administration ad-

mitted at the lime to be higher than it wanted. The same figure

this year is \$108.9hn, rising to

SI 15bn in 1983—figures that even government officials admit

ficit estimates has plagued the

administration in the past year.

It has been the cause of much

It remains to be seen whether

to be increalistically low,

But the most remarkable con-

Last year, interest rates of

2 per cent for the year

Mr Reagan's supporters helieve that the tax hill's passage will heln the Republican eause in the elections, despite the unpopularity of tax increases, by reinforcing the President's "leadership image" which they regard as the party's greatest single electoral asset. What is clear is that Mr

Reagan will have in make a tous hid to mend fences inside the Republican party when he relurns from his Callforma mountain-top next munic.

He has made it cleac, however. that he does not inlend to mak too many conressions to bring the cebels hack to the fuld. He continues to maintain that what he has undertaken is no more than a "mid-course correction" and not Mr Kemp's Usturn. That is largely a matter of perception-the truth lies somewhere in belween. He nos has not launched lbe American economy in a radically new of Wall Street's lack of confi- prodecessor Mr Gerald Ford, put dence in applied Reaganomics, it the niher day, there is not be ing like the Presidency of the any scepticism will be dispelled U.S. for teachling a man a little by the lax bill's passage. The realism,

Men & Matters

Forge politics

Sheffield steelmen were not, on the whole aurprised when Dr man of the city's private steel sector, emerged as chairman designate of Sheffield Forge-masters, the new public sectorprivate sector company that has risen from the Phoenix Three negotiations with British Steel. But what has raised York-

shire evebrows is that Hardwick is to be a part-time chairman of the new venture which is regarded as so crucial to future relations between the two sectors of British steelmaking. He will also continue in his job as chairman of the thluned down. but still viable. Johnson & Firth Brown sleel division.

Hardwick moved into the steel spotlight ten years ago as managing director of Firth Brown, one of the two companies making up the new Sheffield Forgemasters. He bas a distinguished record as a metallurgist and of late has shown equal skill in manipulating the tangled strands of politics that

surround the steel industry. He served a long-than-usual term as president of the British Independent Steel Producers Association, stepping in to take over from his old Sheffield rival Peter Edwards when Hadfields went into the Lonrho group and the later's base disappeared overnighl.

As BISPA president Hardwick has been publicly discreet but privately strong. He bas shown himself to be a man with little taste for the social side of the steel business. Foc instance, although a member of Cutlers' company be has shown no desire to join the queue tn finance sector. he a future Master Cutler.

Chamber of Commerce The only other Sheffield been suggested, some small Forgemasters appointment an- depositors in SIB sue the Manx nounced so far is that of the government for failing to super. The aim of the European Coal are: water buffalo. chlno. whale, managing director. David vise the hank propectly and and Steel Community redun- sea turtle — and antique managing director. Clarke, the energetic general endangering their deposits.

managec of the British Steel River Don works, Sheffield, has heen selected over the Firth managing Arthur Hogg. However, steelmen do not expect Hogg to be left out of the ultimate management piclure.

Bank draughts...

The refusal of the Isle of Man Government to hold a pubhe inquiry into the collapse of the Savings and Investment Bank (SIB), the island's biggest independent bank, has not gone down too well in the island. Many Manxmen believe that heads should rolt as a result of the embarrassing bank failure.

Bill Dawson, the island's Treasurer foc the past three years, bas been in the firing line because it was his department which was responsible for supervising SIB and should have been aware of the prob-Iems at a stage when a rescue could have been mounted.

But Dawson is a civil scrvant. There is a growing feeling on the island that the problem lies with his political masters who seemed unprepared to commit enough money to pay for a highpowered hank examiner until it was too lale. Applications for the £25,000 a year post now about in be cceated do not have to be in until the end of this

Some Manxmen believe that Percy Radcliffe, who look over as the island's "prime minister" last December, should shoulder the real blame. As former chairman of the Finance Board he presided over the capid and Sheffield's slill prestigious generally unsupervised expansion of the island's privale

So far neithec Radeliffe nor Neither has he had much to do any other Manx politician has favoured archipelago, with groups like the Sheffield shown any wish to step down. But that could change if, as has

...and air ways

Jersey and Guernsey will be fielding a strong team—their two Bailiffs, Sir Frank Ereaut and Charles Frossard cespectively-at the Home Office this week to argue that Britain's freedom of the skies policy does nni suit the Channel Islands.

Traditionally the Islands have relied heavily upon 'year-round services provided by scheduled The islands complain that the

Civil Aviation Authority has been granting licences for charter flights which the islands have made perfectly clear they do not want. They have a recurring nightmare of ending due course, un with a Majorea-like situation security station in South Yock-where you can virtually only shire (to trint the actual travel there on a package inur. Not a filting transport system for the well-heeled hankers who iet in and out of the Channel

With the rising cost of air travel the islands have relaved their aconsilian to any charter onerations whatsoever. But they are still firmty nopused in connectition for the scheduled pirlines un the islands' "lifeline" roules from Gatwick. and Heathrow. Seuthamoton.

The islands authorities cegarded it as the last straw when, carliec this year, the CAA gave Britannia Airways permission to yards, and industrial siles in the run a series of chacter flights to The charters did not finally

malerialise. But the islands regarded Trade Secretary John Riffen's refusat in intervence as ar omirous sign. Now they feel it is no longer

safe in allow air potice to be decided over their heads from "say" about who flies to their

Private eye

dancy fund is to provide jobs executive.

for ex-miners and steelworkers. Nevertheless, the fund is to help market some sophisticated gadgetry which will replace jobs

hy electronics aystems. The newly-formed Arrow Security Systems is being backed by £35,000 from the ECSC together with a 15 per cent equity slake held by the Industrial and Commercial Finance Corpocation.

Ron Sutcliffe, managing director, learned the security husiness as a connier-intelli gence officer and as a security advisec to Whithceads.

Employing former miners and steelmen he has developed an electronics system which will monitor industrial premises offices, and perhaps banks in from a central near to industrial espionage. I am warned).

Sutcliffe ran a successful ompany providing security company guards until this year. Then he sold it and started anew because he was fascinaled by the potential to replace people by a piece of microchip technology the U.S. Essentially it cooverts video camera signals into sound signals which can be sent cheaply over long distances

The Yockshire centre is now monitoring factory premises. haulage depots, exposed storage north of England, using British Telecom standard lines. Sutcliffe says the advantages

of his Arrnwguard syslem is that it is cheaner than ceal live security guards and "doesn't leave the premises to go to the puh nr let its friends in for a cup of tea." One drawback, though . . it

Long-serving

won't salute the chairman.

Among the leather wallets The aim of the European Coal are: water buffalo. chlno, whale.

MALAYSIA MINING CORPORATION BERHAD

(Incorporated in Maloysio)

ANNOUNCEMENT TO SHAREHOLDERS

For the second tin export control period from 1st fully to 30th

September, 1982 your company and its wholly-owned subsidiaries have been allocated the following quotas:-Quota of Tin To of Estimated Production Malaysia Mining Corporation

Bidor Malaya Tin Sdn Berhad Lower Perak Tin Dredging 53.2 Serhad Southern Kinta Contolidated 32.71 24.7 (M) Berhad 196.62 70 B Southern Malayan Tin Dredging M) Berhad 273.03 49.5

In view of the severity of the cutback and the impact of low tin prices, the group's production policy has been re-examined to maximise cashflows and profits whilst minimising hardship to the employees on the various mines. In the light of these constraints, it has been decided to close

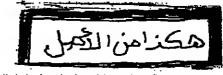
down the following dredges temporarily with effect from the dates indicated until such time as there is a significant improvement in the situation.

Company Section/Oredge Shutdown Malaysia Mining Kampong Gajah Corporation Berhad Section --No. 4 Dredge Aircust 17, 1982 Bidor Malaya Tin Sdn August '6, 1982 -No. 2 Dredge Berhad -No. 3 Dredge August 17, 1982 Lower Perak Tin -No. 1 Dredge August 17, 1982 Dredging Berhad Bernam Section Southern Kinsa --- No. 1 Dredge 5. Kampar Section Berhad August 17, 1982 -No. 2 Dredge Southern Malayan Tin Tanjoung Tualang

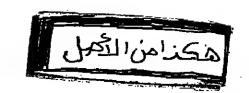
Dredging (M) Berhad Section -No. 5 Dredge August 18, 1982 Apart from Southern Malayan's No. 2 dredge which was closed down on July 29, 1982, due to unprofitable operations, the remaining dredges in the group will continue in production and no retrenchment of workers is envisaged at this stage.

On behalf of the board Abdul Rahim Akı Director

Kuala Lumbor

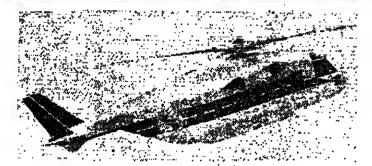


FINANCIAL TIMES SURVEY



AIRCRAFT

Monday August 23, 1982



An artist's Impression of how the civil version of th new joint Anglo-Italian (Westland and Agusta) EH-101 heavy helicopter will look. The aircraft is being designed and built as a military replacement for the Sea King anti-submarine warfare helicopter, but the commercial version will be built alongside it to spread the costs and widen the ultimate market.

Aerospace

Western world aerospace activity has suffered from the recession, especially on the civil side. The outlook, however, is for over \$600bn of business through the next decade for commercial and military aircraft and engines, missiles, spacecraft, avionics and equipment of all kinds

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world economic difficulties. The latter have been most severe on the civil side of the Europe is one of the few that industry. The heavy losses incurred by the world's airlines as a result of the decline in air travel and soaring costs have in Royce) have been obliged to lay turn led to a marked fall in the inflow of new orders and in

On the military side, how-ever, business activity remains buoyant. Despite budgetary re-straints in some countries which some cases even to cancella-tions or deferrals of orders for new-generation equipment placed as recently as two to have caused some programmes. such as the Tornado multi-role One immediate result of this has been that most commercial combat aircraft, to be stretched out, overall order books remain Continuing aircraft and engine manufacdiving their production rates increased spending on conven-

tional, as opposed to nuclear, business in spacecraft of al weapons in the Western Alliance and a continued high level of interest in military aircraft and their associated weapons and equipment in the countries of the Third World are both tending to ensure a steady inflow of new military

aircraft orders, although com-petition is exceptionally fierce. New military aircraft programmes now coming to fruition THE WESTERN world's aerospace industries go to this year's Farnborough Air Show (September 5-12) confident that despite the severe ravages of the recession, especially in the civil market, the longer term-outlook for their products remains good provided they can survive their current problems.

The array of civil and military aircraft, engines, guided weapons and electronics and other equipont the swedish are force. The array of civil and military aircraft, engines, guided weapons and electronics and other equipont to the swedish are force. The array of civil and military aircraft, engines, grammes now coming to fruition include the 400 aircraft in the U.S. Marine Corps (336) and the RAF (60) with four development aircraft; the new JAS multi-role combat aircraft for the Swedish Air Force; the B-1B strategic bomber in the U.S.; and the "next generation trainer" for the U.S. Air Force. The array of civil and military aircraft, engines, grammes now coming to fruition include the 400 aircraft in the U.S. Marine Corps (336) and the RAF (60) with four development aircraft; the new U.S.; and the "next generation trainer" for the U.S. Air Force. The array of civil and military aircraft, engines, grammes now coming to fruition include the 400 aircraft in the U.S. Marine Corps (336) and the RAF (60) with four development aircraft; the new U.S.; and the "next generation trainer" for the U.S. Air Force. The array of civil and military aircraft, engines, guided weapons and electronics and other equipolation of the U.S. Air Force are the u.S. Air Forc

guided weapons and electronics and other equipment of all kinds that will be on display at Farnborough will indicate an industry that is resilient.

Garrett in the U.S.

On the way are such prospective new ventures as the P-110 fighter in the U.K. innovative and forward-looking despite the serious setbacks of the past two to three years as a result of the fibn Anglo-Italian tally the licopter; a new trainer for the U.S. Navy, with the British Aerospace Hawk now the most likely ultimate

now the most likely ultimate
winner; and in the longer term
the likelihood of some kind of
supersonic vertical take-off
fighter for the mid to late-1990s.
New engines, such as the development of the Turbo-Union
RB-199 for the P-110 fighter, and
perhaps also a Viner engine perhaps also a Viper engine replacement; major new missile programmes, such as the British Aerospace Sea Eagle long-range air-to-surface anti-ship missile, and the Advanced Short Range Air to Air Missile (ASRAAM)

are on the way. In fact most manufacturers'
There is also a burgeoning forecasts continue to predict

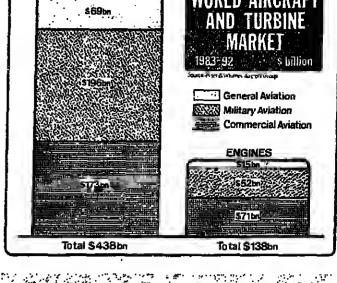
kinds, but particularly in the manufacture of communications satellites of which large num hers are expected to be needed

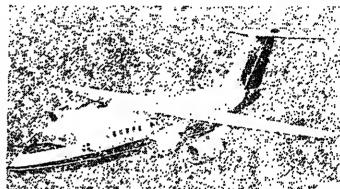
the manufacturers is now more survival. the accumulated backlogs of orders for the new generation of airliners, while waiting for the economic up-turn it is hoped will result in increased air travel and a revival of demand for alreraft.

Even on the depressed civil side, however, there is still considerable long-term optimism. Apart from the new generation of airliners already in production, such as the Boeing 757 short-to-medium range and 767 medium-to-long range airliners, and the rival Alrhus Industrie A-300 and A-310 in Europe, together with the smaller (hut nonetheless significant) British Aerospace 146 four-engined regional air-liner, there are many ideas for

These include plans for eventual derivatives of all of these and other existing air-craft types to fill a wide range of payload requirements. But the most immediately signi-ficant venture is the projected 150 - seater short - to medium range alrliner, on which several airframe and engine manufacturers in both Europe and the U.S.—and Indeed in other parts of the world including Ganada, Aus-

tralia and Japan-are now focusing much attention.
In fact most manufacturers'





The British Aerospace BAe 146 four-engined regional airliner is now undergoing its flight test programme. The aircraft, which involves an investment of over £350m by British Aerospace, is being built in two versions—the Series 100, carrying about 80 passengers, and the larger Series 200, carrying up to 109. The test programme is aimed at winning a Certificate of Airworthiness by the end of this year, clearing the way for deliveries to customers in early 1983.

substantially better times over will be an even higger demand the pext decade despite today's for some 21,200 aircraft of all difficulties. worth about \$196bn, of

Boeing, for example, the biggest jet airliner builder in the world, still helieves that there will he a demand for something around \$126bn of new jet air-liners between now and 1992, covering just over 4,000 aircraft, and military aircraft and engine units, market between 1983 and 1992 If to about \$438hn (in 1982-83 the e

dollars). Of this, about \$173bn will be for some 4,050 commercial air-liners, creating a demand for some 12,000 turbine engines.

which the engine requirement will be for some 47,000 units, worth about \$52hn.

In general aviation (which includes business, executive, leisure and other flying) the overall market will be worth Pratt and Whitney, the world's about \$69bn, covering some largest aero-engine manufacturer, is also optimistic. This company forecasts a total civil about \$15bn for some 74,000

If to these figures is added the estimated \$100bn that is likely to be spent by the U.S. and the rest of the world on tac-tical guided weapons of all kinds over the next decade the total forecast volume of Wesworth about \$71bn. tern world aerospace booking.

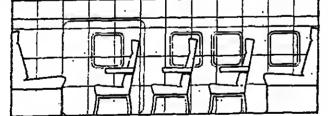
In the military market there of all kinds rises to the stag
CONTINUED ON NEXT PAGE tern world aerospace business

When we designed the new Westland 30, we wanted to build a helicopter that was so versatile it would meet your needs, whatever field you're working in.

· Editorial production in this survey is by Mike Wiltshire and

We succeeded:

The secret of our success is the 460 cu. ft. of space inside. Because it gives you the freedom to choose from a wide variety of cabin layouts.



Suppose, for instance, that like British Airways Helicopters, you wanted to carry commuters on a scheduled passenger service.

All we would need to do is to fit the Westland 30 with our standard seating plan. That way, you could carry seventeen

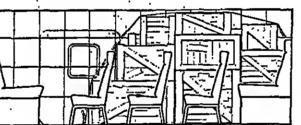
people in armchair comfort. There's so much room, they can even stand up and move around.

And that's a rare luxury in a helicopter. We have also built 74 cu. ft. of luggage space into the back, so they won't keep tripping over their cases. In fact, they'll feel so comfortable they could be forgiven for thinking they were travelling in a 737.

That takes care of commuter transport. But what about offshore support?

After all, you might well need to ferry oilmen to and fro over the North Sea.

In which case, we can offer you a variety of options.



Industry resilient

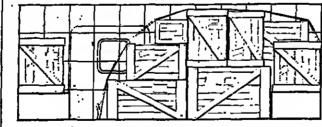
despite setbacks

By MICHAEL DONNE

Aerospace Correspondent

One of the strengths of the Westland 30 is its rapid turn-round facility. That is to say you can detach the seats and fill the cabin with anything from frozen peas to spare parts.

All in the space of five minutes. No other medium-capacity helicopter can give you such flexibility.



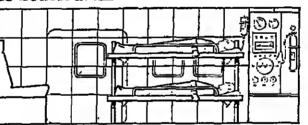
If, on the other hand, you're operating freight services, you will find the new Westland 30 takes a good deal of weight off your shoulders:

Using the series of anchor-points in the floor, you can secure and transport almostany kind of cargo

Running an emergency service like the Red Cross is a different matter. Say, for example, you wanted to fly earthquake victims from the scene of a disaster to a medical centre:

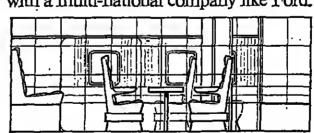
There too. the Westland 30's spacious cabin will come to your rescue. It holds 6 standard hospital stretcher

cases and up to 8 seated casualties with no trouble at all.



And it's so tough and adaptable inside it can work equally effectively for police, fire and ambulance services.

But the priorities would differ again with a multi-national company like Ford.



It might then be a question of rushing top executives to meetings in places like

London, Paris and Brussels in the style they're accustomed to.

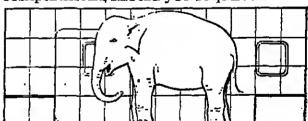
We've already catered for that.

We've designed a luxurious VIP cabin layout for six to ten people.

It can come complete with a galley, a toilet communication systems and airconditioning.

There are optional extras such as a cocktail cabinet and swivel armchairs.

We can even fit a separate private compartment, should you require it.



Of course, you may have very different ideas about what you want to use the Westland 30 for

If so, why not get in touch with us? We'll be only too happy to design a

cabin layout specially for you. And when we've done that, may be we'll

sell you a Westland 30. Westland 30

Westland Helicopters Ltd., Yeovil, England.

WE WON'T SELL YOU A WESTLAND 30 UNTIL YOU TELL US WHAT TO DO WITH IT.

Aircraft builders, engine makers and equipment suppliers have a common goal-to survive the worst recession in the industry's history. Articles on this and the following two pages review the extent of their current troubles and their prospects once the hoped-for world economic recovery begins to take off

Confidence in long-term outlook unshaken

ALTHOUGH THE world's liner market by 1984. (although major commercial aircraft it will remain a major builder manufacturers are now passing of military transport aircraft. through their worst-ever period and even retains an interest in for the inflow of new orders, possible future new and are rapidly working through liner developments). the backlogs they had accumulated prior to the airline recession, they remain confident that, in the long-term, the outlook for new airliner sales

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remains good. At present, however, their primary objective is to survive the depradations of the reces sion, which has severely eroded world air travel, driven many airlines into severe financial losses, and effectively dis-couraged them from placing orders for new equipment.

The extent of the decline can be gauged from the fact that during the first six months of this year, the world's biggest jet airliner builder. Boeing of the U.S., received new orders for only 33 jet airliners, com-pared with orders for 132 air-craft placed in the first six months of 1981.

For other manufacturers, such as Lockheed, the situation vas much worsa and, indeed,

the KC-10 tanker-transport version of the DC-10 from the U.S. Air Force that Is keeping the DC-10 airliner production line running, otherwise with the current paucity of new orders even that company might have been obliged to reconsider its widebodied jet production plans.

But Airbus Industrie, the West European airliner manufacturing group (in which British Aerospace has a 20 per cent stake), is currently increasing its production rate of A-300 and A-310 Airbuses from the present 4.5 a month to reach eight a month by 1984. to meet existing contractual

With an order book for 506 aircraft (323 250-seat A-300s and 183 of the smaller 200-seat A-310s) Airbus bas cut a swathe through world markets in recent years, capturing many

where Airbus has put consider- beyond. able efforts into its sales cam-

possible future new civil air paigns, and where air transport as a whole has been For McDonnell Douglas, it is only the advent of orders for the KC-10 tanker-transport vergo to ten aircraft a month beyond 1984, if demand justifies, but since Airbus Industrie itself has experienced a marked slowing down in new orders in recent months, it seems unlikely that at this stage production will be pushed up to that level.

Airlines

So far, there is no sign of any significant improvement in the rate of inflow of new orders. Airline losses continue to be heavy, traffic is improving only marginally, and even that is not sufficient to generate the revenne needed to offset rising costs and create funds for new

The general view among the aircraft builders is that it may be another year before there is any significant return to confidence among the airlines, to Lockheed has dacided to pull orders that its arch-rival, encourage them to order the out of the big commarcial air. Boeing, thought it would win, new jets that both they and

For the longer-term, the outlook remains brighter. Apart from the recession and the impact of high interest rates upon aircraft financing, none of the basic technical factors that were conditioning the market up to a year or so ago have changed. It remains true that many of the jet airliners in the current world scheduled airline fleet are ageing, and will need to be replaced within the next three to five years.

Fuel prices may have stabilised in recent months or even come down a little, but aircraft of various kinds, of it is accepted that the long-term trend must still be upwards. generating before the end of this decade a requirement for increasingly fuel-efficient air-

Becausa of the rising costs in other directions (labour, laud-ing fees, navigation charges ground handling), there continue to be a need improved aerodynamic efficiency, with reduced weight the use of new through materials, to keep down aircraft direct operating costs, again the market for commercial air-

Many of these orders have the manufacturers know they stimulating a demand for the liners could be worth about one from the Third World, will need in the late 1980s and new generation of jets that cm. \$173bm by 1992, or about 4,050 body these features. body these features.

The need for much less noise will also remain a major factor in airline planning, generating the demand for the new generation of quieter engines.

All these factors add up to the belief shared by most of the manufacturers, that the long-term outlook remains good. despite the current gloom. Boeing, for example, still believes that up to 1992 there will be a market for ahout \$126bn of new jets. This will cover some 4.000

which Boeing believes that not less than 1.100 will occur in the short-to-medium range widehodied or semi-wide-bodied market (for aircraft like its own 767), and at least another 1.350 in the smaller short-tomedium range narrow-bodied market (for aircraft like its new

More detailed forecasts pre-pared by Pratt and Whitney Aircraft Group. the biggest aero-engine huilder in the world (part of the United Technologies Group), suggests that

Harrier V/STOL combat eircraft

further breaks this figure down into 570 long-range twin-aisle airliners (like the 747) worth 250u; \$48bn: 1.310 medium-toshort range twin-siste jets (like the 7671 worth about \$52bn; and 2.170 medium-to-short range single-aisle aircraft (like

the 757), worth about \$63bn

Most manufacturers believe that the recovery will come sometime between 1983 and In the meantime, the orders emerging are small, and are mainly coming from those airlines whose markets have not suffered so severcly from the recession, such as those in the Third World, or countries whose air transport industry is heing deliberately developed as an instrument of social and economic expansion.

In other parts of the world, including the U.S. itself, the manufacturers have been facing the reverse trend of airlines seeking either to defer the delivery of new jets or to cancel orders outright.

Boeing in particular has suf-fered this problem (which is perbaps one of the penalties

Jetstream 31 commuter and comorate airliner

THE COMMERCIAL AIRCRAFT MARKET \$173bn in aircraft sales are likely during the next ten years

Aircraft market es	timates	1983	92, in 19	82 Sbr	î
Aircraft		S .	Non-I	7.8.	World Units 5
Long range	70	6	586	42	- 378 44
Medium/short range over 200 passengers	520	24	790	33	1310 G1
Medium/short range under 200 passengers		.,,	18/4 A. C.		2,170 52
Total deliveries					4,050 172

Turbine engine market estimates, 1982-92 in 1983 364

Engine thrust class ('000 lbs)	Units and sales; spare parts include: U.S. Non-U.S. Total Units 5 Units 5 Units 5
Over 40 25-40 8-25	1,700 14 4,200 32 6,969 46 2,000 7 2,600 10 4,600 17 800 5 600 3 1,400 8
Total Source: Prant	4,500 26 7,500 45 12,000 Tr. t and Whitney Aircraft Group, U.S.

of being the biggest jet builder "7 Dash 7" and McDonnell in the world), and this is putting a squeeze on its finances. since the development cost of its two new airliners. the 757 and 767, is over S3bn, while the development of the new. improved version of the 737, the Series 300, is also costing several hundred million dollars

Because of this financial problem, it seems unlikely that between now and the end of this century there will be more than one entirely new type of airliner developed, and that one seems likely to be the much-discussed "150-seater," for which a gap exists in the market-place and which has aroused the interest of most aircraft and engine builders

and some airlines.
For the rest, it seems likely that the manufacturers will seek to produce derivatives of their existing aircraft. Bosing. McDonnell Douglas and Airbus

Industrie are all studying improved versions of their existing types for the future.

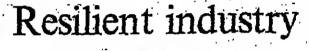
Derivatives of the 737. 757. 767 and 747. and the DC-10 and DC-9, as well as the A-300 and A-310, are all likely to emerge at some time, throughout the at some time throughout the next 18 years to the end of

The one big exception is the 150-seater, and all three major manufacturers are studying it with competitive ideas—Airbus with the A-320. Boeing with the Donglas with the D-3300. On the other hand, the major engine manufacturers — Rolls. Royce. Pratt and Whitney, the three Japanese engine com panies, MTU of West Germany and Fiat Aviazione of Italy are all also discussing possible collaboration on a single engine

for the projected aircraft. But all are agreed that the timing of such a venture has been pushed back. At one stage, 1986 had been canvassed as a possible in-service date, but this has now moved back to late 1987 or even 1988, as a result of the recession, and it is possible that it may be pushed back even further to 1989 or even 1990. At this stage, however, 1987 appears to be the target at which most manufacturers are aiming, and some decisions on who is likely to build what may well emerge by

about the end of this year. But the cost of such an air-craft will be heavy—amounting to about \$25m for the airframe and another \$1.5bm for the engine. It is this which is dictating the international collaboration that is causing so much discussion—encouraged, especially in Western Europe, by governments who know that sooner or later they are going to be asked to help finance such a venture through launching

Michael Donne



CONTINUED FROM PREVIOUS PAGE

cering total of \$338bn.

it is estimated the U.S. alone will spend over the next decade on strategic missile systems Europel for the projected 130-(much of which work will be scater airliner. conducted by the aerospace industry), and the growing volume of space activities, the overall rolume of available Westingers in interest in international venture of available westing the following between the conductions and the second results of the conductions and the second results and the conductions are second results and the conductions are second results. tern world aerospace business rises to well over \$600hn.

Much of this money will of course be spent inside the U.S., by the U.S. armed forces, for their own re-equipment. But there will still be enough left over for the rest of the Western world's aerospace industries to pick up a good living, provided they remain lean, tough and

competitive. Estimates for aerospace pro-duction, both by size and value, the Soviet Union and its allies over the coming decade are unobtainable but are anyway largely academic (beyond demonstrating the size of the Soviet industry) simply because that country imports very little from its continuing interest in high-thrust turbo-fan engines and in items of advanced hightechnology aeronaotical equip-

ment.
Whether these estimates of Western aarospace business will be precisely achieved remains to be seen. But it is clear that most manufacturers are not only looking for such an improve-ment over tha next-decade but are actively preparing to meet t-and even, where it is within their power, to make it possible. They are supported in their

belief by the fact that despite the recession many of the underlying factors that even as recently as two to three years ago were generating a new demand for commercial aircraft have not changed—the increasing age of much of the present equipment used by the world scheduled airlines, the need for ever-improving fuel efficiency through engine and aerodynamic improvements and the need for reduced noise.

On the military sida, despite pressures for disarmament and budgetary constraints in some countries, the overall trend in military auroraft procurement remains upwards and seems likely to continue that way for the foreseeable future.

But the pattern of the industry has been changing significantly and this is likely to be seen at Farnborough more so than ever before, in the plethora of international collaborative arrangements either aiready under way on civil and military ventures or planned for the future.

International collaboration is not new, especially in Western Europe. But the most significant change is that it is now spreading much more rapidly to the U.S., where there has been an national ventures.

herween Bueing, Italy and maustry.

Japan on the 767 airliner and If further to these figures is now also in the search for-added the \$75bn to \$125bn that collaborative partners by both collaborative partners by both Boeing and McDonnell Douglas (as well as Airbus Industrie in

scater airliner.
It is also manifesting itself in lures, covering both current and future models: in the military field with the U.S. Marine Corps procurement of the AV-8B Harrier jointly developed hy McDonnell Donglas and British Aerospace; in the U.S. Navy's interest in the British Aerospace Hawk (also involving collaboration with McDonnell Douglas) for its next-generation trainer programme; and in the talks between Rolls-Royce, Pratand Whitney, Japan, and others on a new engine for the 150-seater airliner.

Yet another significant trend is towards greater use of derivative aircraft and engines rather than involvement in the very heavy costs of developing entirely new ventures. While the latter may from time to time become necessary. where major advances in technology are required, the tenddate what is already available. This is true both of civil and military aircraft and engines.

In the civil field, in view of the parlous financial condition of the airlines and the very beavy costs of developing new airliners and engines, it seem: likely that most of those now on offer will remain the basic types through to the end of this century, being either stretched or modified in other ways to meet the changing range and payload requirements of the arrines as well at the demands for ever better fuel consumption

It seems itkely that only one major new airliner will emerce in the foresceable futuremuch-vaunted 150-seater and 750 associated engine.

The market for such an air-eraft (about 1.000 units or more over the next decade) is so great, with no other existing aircraft fitting the gap, that a new aircraft is really required. But once it is developed the entire range and payload spectrum will virtually be filled. with only a few exceptions of comparatively limited markri potential-and even those are likely to be met by variants ci-

It is this likelihood that the 150-seater will be the last major new civil airliner this century that is generating the current search for new international partners, with the possibility of new international consortia emerging before very long. Just who will link with whom in this international dance remains to be seen but whatever groups emerge are likely to remain together for the rest of this upsurge of interest in inter- contury, if not for langer, with consequential far-reaching This has already become influence on the shape and apparent in the collaboration scope of the world aerospace

Rapier ultra-low-level anti-aircraft missile BAs 146 faniet-powered feederliner Sky Flash medium-range air-to-air missile Jeguer tactical strike eircraft Nimrod AEW Mk3 eirborne early warning aircraft Hawk advanced naval trainer 748 turboprop airliner & multi-role transport Tornado all-weather combat aircraft Communications satellites - L-Sat multi-role comsat Seawolf close-range ship-defence missile Sea Skua helicopter-launched anti-ship missile Sea Dart medium-range ship-defence missile Airbus A300 and A310 airliner programmes 125 fanjet-powered business aircraft Defence support services VC10 air-to-air refuelling tanker See Eagle anti-ship missile BRITISH **AEROSPACE** Unequalled in its range of aerospace programmes



Like most wars, on whatever scale, the Falklands conflict provided a practical testing ground for much military technology still in the development stage. Our Science Editor, David Fishlock, here describes some of the valuable information flowing back to Britain's Royal Aircraft Establishment at Farnborough

Research centre grapples with testing demand

THE Royal Aircraft Establishment, Farnhorough, host to the Air Show, is Britain's biggest defence R and D. and by defence research and development centre and the linching major changes required both by cutting the RAE's payroll by sibility of opening up the Farnhorough, host to the Strathcona report on 25 per cent over four years borough airfield to business for the complete cockpit learned how to use the new arising the establishment to a major the establishment to a major the stablishment to a major in the system of technical was the Falklands war, in which advice supporting the Ministry numerous RAE developments of Defence's £2.6bn procure nearing completion found themment programme for air equipment in 1982-83. It also supports Britain's civil acrospace activities, from new airliners and former RAF fighter pilot and flying instructor whose activities, from new airliners and former RAF flighter pilot as laboratory services provided it by 2.5 per cent of his budget and flying instructor whose by the defence R and D and honse to double the budget participation in the European Space Agency's planned carth-resources satellite, ERS-1.

The air systems establishment has experienced two traumatic developments since the last show. One was the return of Mr. Tom Kerr for his third lour of duty, this time as director. with a mission to implement

previous experience at Farn-borough includes leading the supersonic flight testing programme in the 1950s and as head of the research group in weapons department in 1970. Before his latest return he was director of the National Gas Turbine Establishment,

Pyestock.
Mr Kerr's new job included

selves and more on weapons and. their delivery systems.

The Strathcona report called by the defence R and D and hopes to double the proporestablishments to be done
instead by industry under
contract. Air equipment R and
D was loss in least to a chieve
instead by industry under
contract. Air equipment R and
ievel. D was less vulnerable to this

R and D policy change, putting operate it for experimental less emphasis on aircraft them-

AEROSPACE III

The more positive side of Strathcona includes the strengthening of long-term basic

To meet demands for staff instruction than army and navy economies two RAE departequipment R and D, where ments—engineering physics and traditionally more design and flight structures—bave been project work had been done in-house. Nevertheless, for the heen picked up by industry or RAE it will mean some changes. transferred to other depart-For example, there is the pos-ments. Flight systems, for ex-

other is an unmanned aircraft the establis division, emphasising the growing potential of the remote pilot. Kerr says. less vehicle (RPV). A third is a systems analysis division, reflecting his experiences of the value of simulating war scenarios at the Defence Operational Analysis Establishment in the 1960s.

Not yet resolved is the future of the National Gas Turbine Establishment near Farnhorough. Strathcona recommended a special study of the future of this laboratory and whether, for example, its programme could satisfactorily be divided between RAE and Rolls-Royce. About one-third of the NGTE's work is on civil air-craft engines. On future militrary aircraft concepts such as the P110 fighter and the super-sonic jumpjet, RAE and NGTE aiready work in close partner-ship. A merger between RAE and the NGTE is an obvious pos-

"My job is totally different from that of Farmhorough's director 10-15 years ago." Mr Kerr acknowledges. But it still leaves him time to get im-mersed in the science and lechnology of aerospace, while on the weapons side he is increasing, not reducing, the estab-lishment's efforts.

One major change on the civil side which has given him some extra manpower is the closure last spring of the thermal testing of a Concorde airframe, a programme which involved about 66 people. Cold testing continues for several years yet, however, to complete the data needed for Concorde to continue in service to the end of the century.

.The other recent development, the Falklands war, drained the laboratories of much of their most advanced technology as the special ward on the nose of the demands of the engagement helicopter (see accompanying

During the engagement the RAE carried out about 90 trials RAE carried out about 90 trials on its ranges in direct response on its ranges in direct response to such requests as how ships systems department, will focus could decoy the air-launched the rapidly developing technotex and logies of flight computers. Another is an unmanned aircraft division, emphasising the growting note rite of the remote piles. The most innovative ideas," Mr

Wind-tunnels

Tasks thrust upon Farn-borough as a result of the engagement ranged from new combinations of aircraft and weapons—Harriers armed with the Sidewinder missiles, for instance—to the use of its wind-tunnels to explore ways of pulting up tents in high winds.

The establishment's capability for night vision was in nrgent demand in a war which was being fought round the clock; traditionally night has meant a respite in fighting. New navi-gation and radio fix systems were rushed from the labora-tories to equip the Vulcans and Nimrods for inflight refuelling in total darkness. The Harriers and helicopters were hastily fitted with the latest technology for night vision.

"The rate at which we introduced modern systems at the start of the Falklands crisis is incredible," Mr Kerr claims.

Some of the new systems will he making their public debut at the Air Show. Farnborough itself will be demonstrating its REDOWL (Remole Eyes in the Dark Operating Without Light) system of night vision for heli-copter pilots as part of a major exhibit of the helicopter as a weapons system. REDOWL allows the pilot to fly very low and to undertake search and rescue operations at light levels lower than clear starlight. Ferranti developed the technology in collaboration with the RAE's flight systems depart-

REDOWL's display is mounled on the helmet of the pilot and served by a low-light-level TV or lnfra-red sensor set for-

Aerospace enters a new era

THE FINANCIAL TIMES, in conjunction with the Royal Aeronautical Society, is holding the latest in its series of Aerospace Conferences on Angust 31, and September 1 and 2, at Grosvenor Hnuse, Park Lane, London, entitled "Aerospace Enters A New Era."

Designed with the Farnhorough Alr Show (September 5:12) in mind, the theme of the conference is that, despite the current recession, there is considerable hope for the future. A distinguished international panel of over 30 leaders of the aerospace, civil aviating and related industries will discuss this theme during the three-day event.

sketches). The novelty of the RAE's system is in the way this sensor follows the head movement of the pilot, providing him with an uninterrupted wideangle vision of the world outside. He can even effectively "through the floor," for his field of vision extends 100 degrees to the left and right of centre, and from +20 to -100 degrees in the vertical plane.

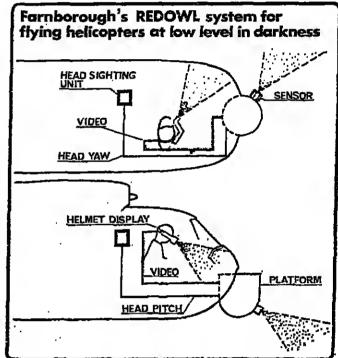
The helmet-mounted display

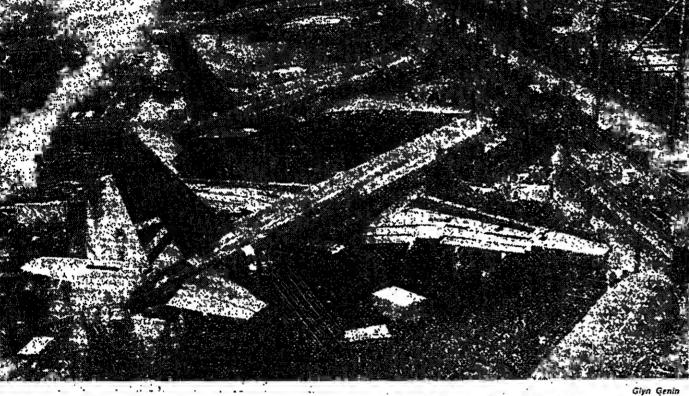
pilch and yaw and feeds the figures to servos in the sensor platform so that it follows the pilot's line-of-sight. At its heart is a very fast-acting servo, found essential in order to avoid the pilot becoming severely disorientaled hy any lag in the response of his elec-tronic eye in following the direction in which he was actually looking. If they were to retain the pilot's full co-operation the scientists found that the sensor had to swivel at speeds of at least 1.000 degrees

measures pilot head angles in



Mr Tom Kerr-hack at RAE as head man nn his third tour





The first of 17 twin-let 757s for British Airways (BA) takes final shape at Boeing's Renton, Washington, factory. The new aircraft will join the 757 test fleet later this year for Britain's Civil Aviatinn Anthority certification. UK Government approval is expected in January, when the first BA 757 is scheduled for delivery

New electronic bird watcher scans North Sea air traffic.

Who would expect air traffic to be much of a problem anywhere near this lonely headland in the Shetland Islands, far to the north of Scotland?

The reason is simple. Oil. The Shetlands, once better known for sweaters and sheep. dogs, are just a hop by helicopter from North Sea oil fields.

It's not surprising, then, to find a sophisticated radar system in use keeping busy whirlybird air traffic safely under control. Inside the cocoon-like

shelter shown in the photo (left) is the antenna of such a system, designed and built by Cossor Electronics Limited for the U. K. Civil Aviation Authority. At the airport nearby, controllers use Cossor displays to

monitor approaching and departing air traffic. This is just one of hundreds of similar radar systems that Cossor, a Raytheon company, has

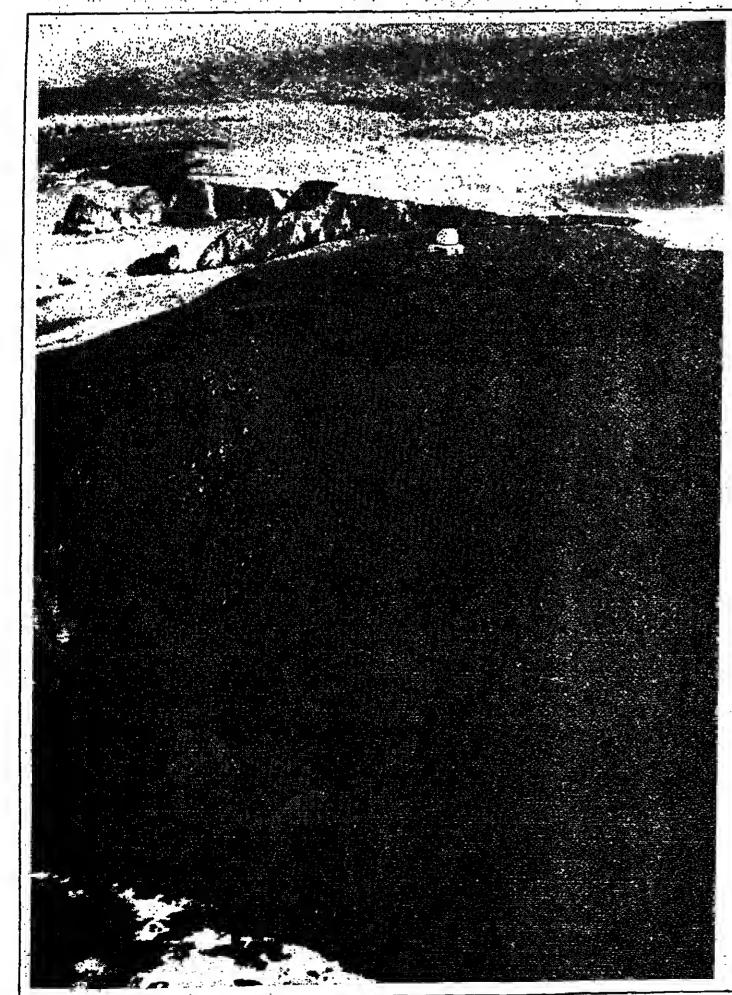
supplied for use at airports around the worldand just one part of Raytheon's widespread involvement in air traffic control.

Raytheon has recently completed a fully integrated air traffic control system for the Federal Republic of Germany. In the United States, we have long been a supplier of radars, automated displays, and computer systems for the enroute air traffic control network.

Raytheon...a \$5.6 billion company in electronics, aviation, appliances, energy, construction,

and publishing. For copies of our latest financial reports, please contact any of the offices or companies listed below, or write: Raytheon Europe. 52. Route des Acacias. 1227 Geneva. Switzerland, or worldwide headquarters, Raytheon Company, 141 Spring Street, Lexington, Massachusetts, U.S.A. 02173.





FOR INFORMATION ON COSSOR: Cossor Electronics Limited, The Pinnacles, Elizabeth Way, Harlow, Essex CM19 5BB, England, Tel. 0279/26862.

OTHER RAYTHEON COMPANIES IN EUROPE: Electronics: Data Logic Limited: London, England • Raytheon-Copenhagen, Denmark • Raytheon Halbleiter G.m.b.H., Munich, West Germany • Raytheon International Data Systems, Amsterdam, Netherlands: Frankfurt, West Germany • Raytheon Marine Limited, London, England • TAG Halbleiter G.m.b.H. Boeblingen. West Germany • TAG Semiconductors Limited, Zurich, Switzerland • Wire and Cable: Electrical Installictions Limited, London, England • Le Fil Dynamo, S.A., Meyzieu, France • Greengate Cables Limited, Manchester, England • Klasing G.m.b.H. & Co., Ingolstadt, West Germany • Lacroix & Kress G.m.b.H. & Co., Bramsche, West Germany • Sterling Cable Company Limited, Manchester, England • Raytheon Perlinting Cable Company Limited, Aldermaston, Berkshire, England.

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The state of the s

The engine makers and suppliers are having their troubles but technological research for the long term continues apace.

Tougher times ahead for engine makers

AS WITH the aircraft builders, are either already on offer or the world's major aero-engine under development, or for manufacturers over the past derivatives of them. The soar-year or so have experienced the ing cost of engine research and full weight of the recession. The development warms that today from West Cormany and Halv. Pratt & Whitney will be their drawing boards, but so far types of fuel. At a time when their drawing boards, but so far types of fuel. At a time when their drawing boards, but so far types of fuel. At a time when one has taken the plunge the airlines use over 20bn galant and announced a firm development over £30bn, not only is conservative. cases, such as Rolls-Royce, the reduced work-load on civil years before comme engines such as the RB-211 has returns can be achieved. led to reductions in the labour

The lack of orders for the Boeing 747, and the decision by Lockheed to end TriStar production by 1984, resulting in the cancellation by some air-lines of outstanding options on the latter aircraft, have helped to depress demand for the Dash

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Brazi The

534 version of the RB-211.
In the meantime, bowever, production work on the new Dash 535 version of the RB-211 engine is growing to meet existing contractual commitments, but the slow inflow of new orders for the Boeing 757, which the RB-211-535 powers, is also beloing to keep overall commercial aero-engine output at Rolls-Royce at a comparatively low level.

Slackening

Similarly, at both of Rolls-Royce's rivals, General Electric and Pratt & Whitney in the U.S., the airlioe recession and the consequent slackening of demand for aircraft and engines has cut work-loads substantially.

term future for the aero-engine cast that the total world aircraft market through to 1992 will amount to \$438bn (in 1982/83 dollars), of which \$173bn will be for ahout 4,050 commercial airliners: \$196hn will be for 21,200 military aircraft of all kinds; and \$69hn for 37,500 general aviation aircraft of all eral duty aircraft).

Of the overall market, Pratt & Whitney estimates that the value of turbine engines sold will amount to \$138bn by 1992 (in terms of 1982/83 dollars), of which the commercial airliner engine market will account for over 12,000 engines, worth \$71bn; the military engine market for about 47,000 engines, worth about \$52bn; and the general aviation about 74,000 engines, worth some \$15bn.

Most of this business, how-

full weight of the recession. The development means that today from West Germany and Italy, marked slow-down in the rate it can cost as much as \$1.5bn to to try to formulate a joint proof ordering by the airlines bas \$2bn to develop and manufacturamme to develop an engine forced production cuts on the ture an entirely new civil air- for this new class of airliner. engine builders, and in some craft engine, and much of that money is on risk for many years before commercial

Such outlays are likely to preclude the development of more than one new type of civil jet engine in each class of aeroplane in the foreseeable future, and where even that engine can be derived from an earlier model it is likely to be

What this means is that today's generation of commercial jet engines, and those already under development for the future, will continue in production for many years to come They include the RB-211 in all its various versions for air-liners such as the Boeing 747. TriStar and 757 airliners; the Pratt & Whitney JT-9D and General Electric's CF6-50 and CF6-80 Series for such aircraft as the 747, Boeing 767, and Airbus A-800 and A-810; the Pratt & Whitney PW-2037 for the Boeing 757; and the Snecma-Geograf Electric CFM-56 engine series for the new Boeing 737 Series 300 and other airliners.

able adaptation and improvement in all of these engines, Nevertheless, as with the air and these can be expected to frame manufacturers, the long-occur as the airlines continue to place stringent demands on builders is brighter. Pratt & the engine manufacturers for Whitney, for example, has fore- improved fuel consumption, lower noise and reduced emisaion pollution, and on the air-frame makers for "stretched" or other derivatives of existing types of airliner.

There is scope for consider-

It is significant that in the commercial jet engine field, only one entirely new major general aviation aircraft of all engine is seriously being contypes (including business and executive jets, leisure flying and agricultural and other general aviation aircraft of all engine is seriously being contypes (including business and executive jets, leisure flying engine for the projected 150-and agricultural and other general aviation aircraft of all engine is seriously being contypes and executive jets, leisure flying engine is seriously being contypes and executive jets, leisure flying engine is seriously being contypes (including business and executive jets, leisure flying engine is seriously being contypes (including business and executive jets, leisure flying engine is seriously being contypes (including business and executive jets, leisure flying engine is seriously being contypes (including business and executive jets, leisure flying engine for the projected 150-and agricultural and other general executive jets, leisure flying engine for the projected 150-and agricultural and other general executive jets, leisure flying engine for the projected 150-and agricultural and other general executive jets. areas, such as the turbo to be propeller field and in the area year. of small jet engines for business aircraft and other uses, several new developments are being studied.

Because of the very high be pushe costs of new engines, the or even power-plant for the 150-seater the pressurems likely to be an interfacturers. national collaborative venture on a much wider scale than ever before undertaken. One of the most far-reaching

developments is that two of the bitterest competitors in other ever, will be for engines that commercial engine fields, Rolls-

The stakes are high. The market for the aircraft has been estimated at upwards of 1,000 over the next decade or so, worth perhaps \$50bn, of which the engine market is likely to account for some 3,000 units (including spares), worth

about \$20bm. the potential Although rewards are high, however, the development cost is beyond any individual manufacturer, and the collaborative venture is essential if everyone is to win some share of the market. The benefits of collaboration include not only spreading the burden of costs, but also eliminating the competition and widening the ultimate market for the successful power-plant.

At present, the discussions on the 150-seater engine centre round the RJ-500 hitherto being developed jointly by Rolls-Royce and the three Japanese engine companies, but Pratt and Whitney has also been working on ideas for an engine of its own, and these are also being brought into the discussions.

At this stage, it is not known what kind of engine will emerge, but it will clearly incorporate the best technology that each engine manufacturer can contribute.

Ideally

Nor is it yet clear precisely when the engine will emerge, although it is generally accepted that the aircraft involved will be needed some time in late 1987 or in 1988. This means that the engine should ideally hecome available about two years in advance, say, in late 1986, which in turn means that a start on its development needs to begin around the end of this

If, however, the alrline recession remains for very much longer, the likely demand for hoth airframe and engine could be pushed back towards 1989 or even 1990, taking much of the pressure off the manu-It is boped that the current

discussions will reach some conclusion before the end of this year. The problems are not only who will produce which parts of the engine, but also how much cash each partner

Japanese companies will probably be seeking cash support

of the eventual market for such

Inevitable

Should the discussions on a joint venture fail, It is inevitable that each partner will go his own way. Rolls-Royce and the Japanese will return to work on the RJ-500, and Pratt & Whitney, supported by Motoren-und Turbinen Union and Fiat. will return to its own studies. The resulting competition will be of benefit only in the sense that the airlines will have a choice of power-plants.

There will be a hitter fight in the market-place between the rival engine groups, and whether the latter will make any money out of such a hattle is doubtful.

Apart from jet engines, there has been a significant revival in recent years in the possible development of new types of turbo-propeller power-plants — which are much quieter than jets, and use much less fuel. The turbo-prop engine is already widely used in military transporta, and in the smaller, lighter types of transport aircraft, especially the twin-engined "commuter" or "regional" airliners seating between 20 and 50 passengers, and even in smaller aircraft used in business and general

Whereas at one time in the 1950s and 1960s, large turboprop airliners were In use (such as Bristol Britannias), they were effectively forced out of the mainstream of world airliner activity by the advent of the jet. which then had the advantage of very cheap fuel.

The sbarp rise in the price of aviation fuel over recent years, and the inevitability of further rises throughout the rest of this century, has encouraged a renewed interest in the large turbo-prop airliner, and hence in a possible return to large turbo-prop engines. Several of the major airframe

manufacturers, especially in the U.S., have project studies for large turbo-prop airliners on

Pratt & Whitney will be because so far the engine putting in its own cash, but makers have not themselves the various European and announced plans for new large turbo-prop engines.

It is probable that such engines as the Rolls-Royce Tyne tive fuels is greatly encouraged. fro mtheir governments.

The latter will need to be and Proteus, mainly used in satisfied as to the cost and military aircraft and hovercraft. work-sbaring arrangements, and could be adapted for use once a venture before committing but here also the promein themselves to any form of finding enough development cash, and the need to be assured to be assured. again in commercial airliners. of reasonable markets.

The major propellor manufacturers, too, have been studying new developments in this field, and propellors that look more like ships' screws than the current conventional fourhladed propellers are being studied closely. These, it has been suggested, would enable airliners to fly at speeds close to those of jet airliners, but with much lower operating

Whether such aircraft emerge remains to be seen, but undeniably it is an area of research that could yet have far-reaching results for the world's so as to squeeze every possible

Yet another major area of research is into alternative

(through improved operating procedures as well as in greatly improved fuel-efficient engines), but also the search for alterna-

The possibilities of using such alternatives as liquid bydrogen have been studied by a number of manufacturers, but the heavy costs involved in producing and supplying to airports round the world the quantities that are likely to be required, together with the safety factor and the heavy costs of adapting aircraft and engines to their use, tends to encourage the belief that it will he a long time before such fuels emerge as practical alter-natives, if at all.

It seems that, for the im-mediate future, the greatest emphasis will be on the development of derivatives of existing power-plants, or of new ones, using existing fuels hut with ever greater fuel-efficiencies, whilst the airlines will continue to explore every possible means mile from each gallon consumed.



ADVANCED ENGINE FOR BOEING 757

Test running is in progress with an RB-211 535-E4 development engine with a high-efficiency wide-chord fan. This engine is being developed for service in Boeing 757 airliners from 1984 onwards. Its advance fan incorporates technology unique to Rolls-Royce. Recent testing has shown that fuel consumption is reduced by over 2½ per cent compared with the earlier design of the fan in the initial 535C engine

Equipment will absorb increasing share of all-in costs

EQUIPMENT and components provide the vital third element in aerospace manufacture, ranking in importance alongside the design and production of airframes and engines.

Each aector is very closely related and changes and developments in airframe and engine technology are matched by improvements and advances in the equipment and components at the beart of contemporary air-

The size of the equipment and component industries around the world can be gauged from military aircraft business.
Forecasts from Boeing, the

world's leading manufacturer of commercial airliners, estimate that sales of commercial aircraft will be worth \$126bn over the next decade. One third of this spending is expected to be accounted for by equipment and components, an estimated \$40bn over the next 10 years.

Military

In the military alreraft sector the role of equipment and components involves even greater expenditure, both proportion-ately and in absolute terms. Industry and government sources estimate that total sales of fighter, bomber, reconnaissance and other aircraft including helicopters will be worth \$196bn over the next decade.

Breakdowns of the cost of contemporary military aircraft suggest that at least 50 per cent of the total spending on military aircraft is likely to be accounted for by equipment and components, a total of about \$98bn hy

high proportion is accunted for by the greater complexity and multiplicity of roles military aircraft are designed

A third outlet for aerospace equipment and components is the guided weapon sector. Sales forecasts are more difficult to establish for guided weapons but industry sources in the U.S. suggest that over the

year to 1992 the U.S. and the rest of the world together are expected to spend between \$75bn and \$100bn on all types of tactical guided weapons. An even greater proportion of this expenditure is likely to he accounted for by equipment and components than the onethird to a half of total spending in the case of aircraft. In guided

weapons, which are almost little more than flying guidance systems, well over 50 per cent of the cost is accounted for by equipment and components and the figure could be as high as

70 per cent. This would put a value of ment and components for

guided weapons up to 1992. The high proportion of equipment and component costs in guided weapons is accounted for the relative simplicity of the tube-like bodies and the rocket motors or small turbines

which power the missiles. By taking the three main sectors of aerospace, excluding strategic weapons and space hardware, the total free world market for aerospace equipment and components for commercial and military aircraft and guided weapons can therefore be estimated at approximately \$208bn between now and 1992. This gives it an importance unrivalled by any other single sector of

A close-up of "propfan" technology-how the aircraft propellers of the future may look the world aerospace industry. The scale of this forecast spending is certain to bring with

it intense competition between manufacturers and also the possibility of greater collaboration between companies where the high costs of development out-\$70bn on the supply of equip- reach the resources of individual companies. The high costs of developing

new aircraft and missiles has already led to a reduction in the number of major projects on hand at any one time. This in turn has encouraged companies in the equipment and components sector to concentrate their efforts on getting a foothold on the large production runs asso-

ciated with these projects. A typical and very successful example of this type of effort bringing rewards for a British maker of aerospace equipmen involves the new Boeing 757 airliner programme. Dunlop Aviation Division announced this summer that it had won a major contract to supply structural carbon brakes and main wheels for the 757.

An initial order for 100 air-crafts sets of wheels and carbon brakes for the eight-wheeled aircraft was placed by Boeing with an option on a further 200 sets of equipment. The total value of the original contract and future replacement business over the next 20 years was estimated by Dunlop to be £60m at current prices.

This contract could be worth £200m for the 300 aircraft on option by world airliners. Boeing has forecast that sales of the 757 airliners could exceed 1,000 aircraft.

Structural carbon brakes are in use on Concorde, where they have a proven track record. On the Boeing 757 they are expected to achieve at least 3,000 landings and will save approxi-mately 678 lb in weight.

This type of collaborative cross-frontier exercise has also been demonstrated by U.S. companies supplying equipment for European aircraft projects.

Revision

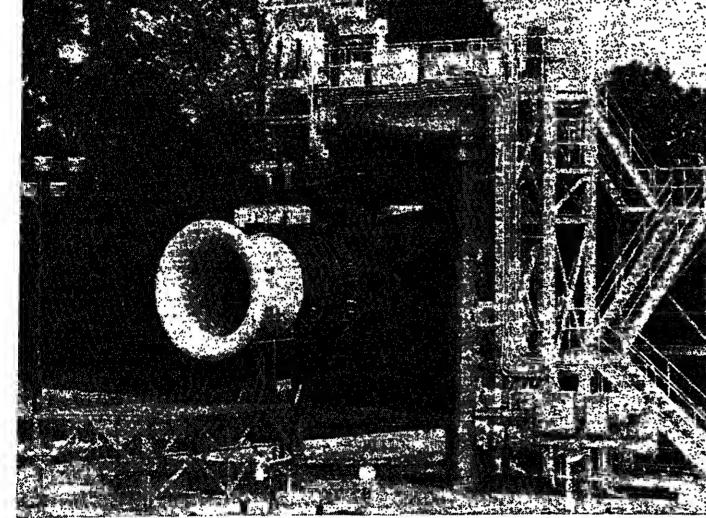
The EDO Corporation of New York has a contract to supply 6,000 ejector release units for the West German and Italian national requirement for the Anglo-German-Italian Tornado multi-role combat aircraft being produced by West Germany and Italy. A recent revision of the contract price gave EDO a total

contract value nf \$151m.

This type of informal "two-way-street" of sales in aerospace equipment is generally more prevalent in the civil airliner sector than in the military, where there is still a tendency for countries and companies to try and keep within national boundaries some of the more advanced technical developments, especially where these involve giving a military advantage tn one country or another.

The battle to develop the next generation of advanced air-to-air missiles is a case in point and involves a desire by the U.S., Britain and Germany to collaborate to share develop-ment and production costs. At the same time, however, the national companies involved are likely to be less willing to share every detail of their own developments of equipment, produced after expensive in-house innovation and design work.

Lynton McLain



TESTS ON ONE OF THE WORLD'S MOST POWERFUL ENGINES

The General Electric Company of the U.S. commenced successful testing ahead of schedule of its CF6-80C engine (above) at GE (USA's) outdoor facility at Peebles, Ohin. During the preliminary performance tests, the engine demonstrated a corrected thrust level of 61,000 pounds, and the specific fuel consumption was within 1 per cent of the original specification. The engine is thus one of the most powerful in the world

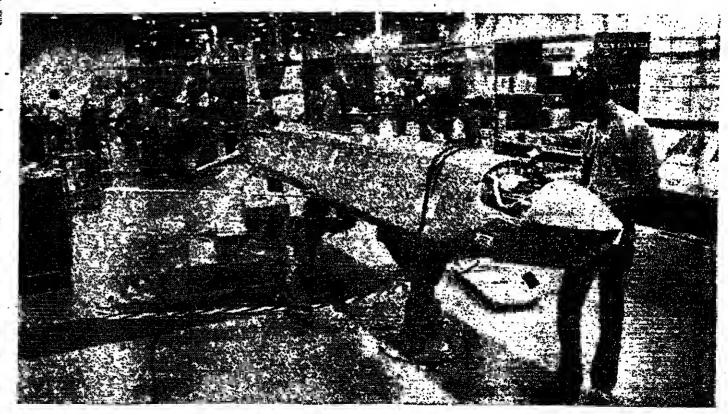


LONG-RANGE DETECTION

A NEW variant of the Westland Sea King (left) has completed trials at Westland Helicopters, Yeavil, and two are embarked on HMS Illustrious for deployment to the South Atlantic.

Equipped with an advanced marine surveillance radar, the Thorn-EMI "Searchwater," the new Sez King provides long range detection of aircraft at low and high altitudes as well as surface targets as small as submarine periscopes.

This new capability was accomplished in only 11 weeks, by close collaboration and intensive working by a inint Ministry of Defence, Royal Navy, Westland and Thorn-EMI team. Flight trials have already shown that performance of the system is ontstanding and exceeds expectations.



The final assembly of a Boeing Cruise missile at the company's factory in Seattle, U.S.A. The Cruise missile, in common with other The final assembly of a Boeing truise missue at the company's factory in Seattle, U.S.A. The truise missue, in common with other advanced guided weapons, has a simple body shell and is powered by a relatively simple motor, in this case a small gas turbine. The complexity of the missile lies at its heart, where microelectronic computers and associated electronic guidance systems account for well over 50 per cent of the total cost of the weapon. In general, components and equipment account for a greater proportion of the cost of guided weapons than is the case with even the most advanced military aircraft.

What engine launched the 767, A310, 747SUD and A300-600?

Our JT9D-7R4.



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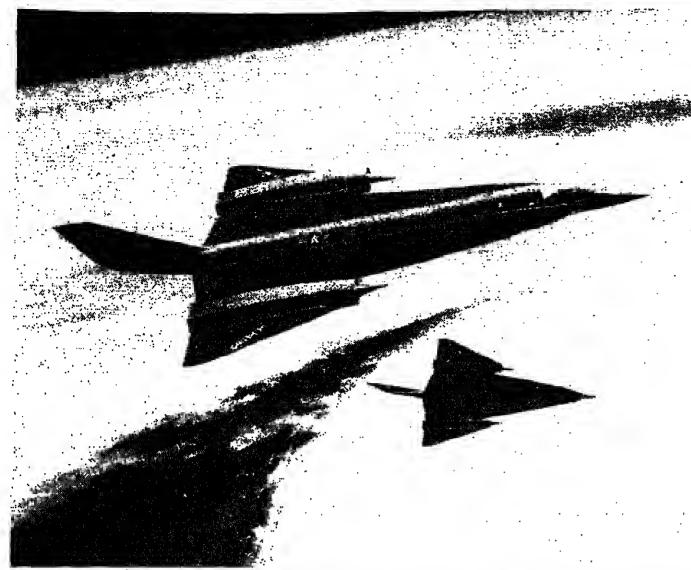
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AEROSPACE VI



THE possible shape of things to come is itlustrated in these conceptions of an Advanced Tactical Fighter under study by the Lockbeed-California Company. The fighter's role would be the defence of the continental U.S. against enemy super-sumle hombers but it would also have the capability to perform deep strike and air-to-air missions in any theatre of

Resembling the Lockheed SR-71 Blackhird in both design

and performance, the proposed ATF would use new advanced aluminium alloys that cost less than titanium. These alloys would make feasible the airframe's manufacture under conventional fabricating methods with titanium use limited to areas of the aircraft, such as engine nacelles, subject to extremely high temperatures. Some advanced carbon graphile composites would be employed in the liner paris of the airframe.

As costs continue to rise, more and more care is being spent on perfecting missiles of all kinds to improve the capabilities of aircraft as "weapons platforms"

Guided missiles form spearhead of advanced technology

THE guided weapons sector of the world aerospace industry is growth and unprecedented technical change. The next decade is widely expected by the industry to he marked by multi-billion dollar sales with rising exports and a level of technical advance unlhought of five years

These developments are sel to place the guided weapoos industry in a position of growing Importance in the acrospace industry and in component supply industries.

At the same time, military uthorities and manufacturers will try to assimilate the lessons of the Falklands' war - the first to provide a full-scale lest of aggressive and defensive missiles in combal — and look to a future dominated by a new generation of hyper-velocity thinking missiles of unprecedented accuracy, with laser and particle beam weapons

weapons industry may be gauged by the scale of the forecast sales for next year and into the 1990s

Sources in the US differentiate broadly between sales of U.S. strategic ballistic missiles and sales of all other types of guided weapons to all countries over the period. by all manufacturers, U.S. and

Next year, the U.S. is expected to spend a total of U.S.\$9.1bn oo stralegic missiles. By comparison, a total of \$7.9bn is expected to be spent by the U.S. and hy all other countries on all other types of tectical guided weapons, ln 1983.

Strategic

Over the decade to 1992, the U.S. is expected to spend programes between companies between \$75bn and \$125bn on and between governments. A similar total, between \$75bn

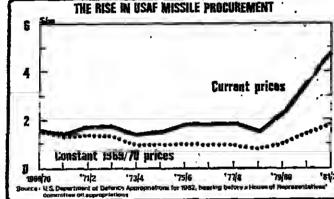
spent by the U.S. and the rest of the world together on all date actions of the world together on all date allied forces, include the types of tactical guided North Atlantic of the world logether on all weapons between now and 1992, according to U.S. sources. These figures for gulded

weapon expenditure are comparable with the scale of apending forecast by Boeing, the may be limited by the desire pany this year for civil aircraft technical developments, up to 1992—an estimated \$128bn especially those achieved at U.S. commercial aircraft comby all airliners with all manu- high cost and which could give facturers. This underlines the scale and importance of the guided weapons industry.

Unlike the commercial aircraft sector, however, forecasts and detailed analysis of guided weapon sales are not readily available. This reflects the secrecy and political sensitivity of sales, especially to the Middle East and Africa, the regions with the largest imports of guided weapons.

Nevertheless selected figures are available. In particular, the "World Military Expenditures and Arms Transfers" published in March this year by the U.S. Arms Control and Disarmament Agency for 1970 to 1979, shows the scale of the arms trade in surface-to-air guided missiles, the only missile category specified in the docu- already given away a good deat of Nato.

The agency says that a total of 25,670 surface-to-air guided missiles were exported by the developed nations of the world that there was a two-way-street between 1975 and 1979. The of exchange in technology. At Soviet Union headed the list of the moment, however, "I am the next generation of advanced



type of missile reaching a fer of any more technology," be cumulative total of 16,960 mis- said, siles for the period. The U.S. Th was the secood supplier with 140 surface-to-air missiles sold for export, followed by France, with the export of 1.340 surfaceto-air missiles, and Britalo with the export of 230 surface-to-air missiles.

The Middle East was the leading recipient of these missiles and acquired over 14,000 surface-to-air weapons between 1975 and 1979. Africa was the second largest importer and acquired over 7,500 missiles

Other gulded weapons, with unquishtified sales to all regions. include air-to-air missiles, airto-ground missiles, air-launched, ship-launched and ground-launched anti-ship missiles, antiradar missiles, anti-missile missiles and the range of strategic sod tactical nuclear weapons including cruise missiles.

Many of these guided weapons have been developed and produced under joint collaborative

The aim of this collaboration is to reduce unit costs by sharing and \$100bn is expected to be research and development expenses and to promote slandardisation of equipment among including the Treaty Organisation.

However, the extent of fulure collaboration on the new generation of advanced missiles of manufacturers to safeguard a compelitive edge to a com-

pany's products. Admiral Sir Raymond Lygo, the chairman and chief execulive of the British Acrospace Dynamics Group, one of the world's leading missile producers, emphasises that a lack of collaboration between manufacturers of guided weapons is one notential obstacle to further standardisation of equipment, many, and the U.S. He helieves that a company can only maintain its full independence if it keeps its ideas on

advanced technology to itself. "The need to defend our industrial base has imolications for the extent to which British Aerospace can proceed with collaboration projects aimed at increasing slandardisation." he said in London, recently.

He insisted that Britain had of advanced technology. He accented that collaboration was a problem, but he was not in principle against it, provided exporters with lotal sales of this most concerned about the trans medium-range air-to-air mis-

to the growing practice in the airframe and engine manufac-turing industries. Here, collaboration has become a standard practice in the fire of rapidly escalating development costs, beyond the range of any

the guided Nevertheless. weapons industry bas developed successfully a number of missiles through joint collaborative programmes. In Europe. a consortium known as Anti-Surface Euromissile, made up of British Aerospace Dynamics, Aerospatiale and Messerschmitt-Bolkow-Blohm worked several years on an anti-surface

weapon to meet Nato needs. In December 1979, after a memorandum of understanding signed by the British, French and German Governments, the Euromissile Dynamics Group was formed by BAe, Aero-spatiale and MBB to design and build new gulded weapons.

The first project of the Euromissile Dynamics Group is the development of a third-generation medium and long-range anti-tank guided missile for service in the 1990s. This weapon. so far unnamed, is to be a successor to the BAe Swingfire, the existing Euromissile Milan and the TOW anti-tank missiles. Later, Euromissile Dynamics is to assume responsibility for other joint projects agreed by

the three governments. British Aerospace Dynamics Is also the lead contractor in Brilain for the new European advanced short-range air-to-air missile (ASRAAM1. This is being developed as a 50:50 joint venture with Bodenseewerk Geratetechnik (BGT), the lead

contractor in West Germany. The ASRAAM project is part of a planned rationalisation of future air-to-air missile design. development, production and procurement agreed between the Governments of the UK. the Federal Republic of Ger-

Memorandum

The rationalisation is based on a Memorandum of Understanding signed by the three governments. Under the MOU, it is proposed that the development of the next generation of air-to-air missiles should be sbared between these members

The plan is that Europe. through BAc and BGT, should on the new short-range sir-toair missiles, the ASRAAM, The U.S., for its part, is to develop

siles. the AMRAAM, with Hughes as the lead company.

Under the MOU, the European partners and the U.S. will each have the right to produce both missiles, where necessary under tleence. Britain is expected to buy the AMRAAM from the U.S. and the U.S. is expected to buy the ASRAAM from Britain and Germany.

France may take part in the project at a later date.

In the meantime, the design concept of the ASRAAM has still to be finalised. British Aerospace Dynamics Group is delermined to go for a hypersonic hittile according to Admiral Sir Raymond Lygo. This approach would embrace the latest This approach is in contrast advances in guidance and propulsion technology and would enable British Aerospace to capitalise on its experience with its successful Rapier ground-lo-air missile. Rapier is also a "hittile." It

is lightweighl, bas only a small warhead and is designed to bit its tsrget. Other misailes are designed around a large war-head intended to explode in the proximity of the target.

British Aerospace does not see proximity technology as the way forward in guided weapon design. The company's Ideas for ASRAAM suggest a weapon without a warhead with hyper-sonic velocity, several times the speed of sound, designed to hit physically the target aircraft and destroy it with kinetic energy, the energy of the mis-

sile's forward motion.
This is already within the scope of existing technology. The great advance comes with BAe's confident forecast that the ASRAAM will be produced, starting in 1986 at half the price of existing ahort-range missiles such as the Sidewinder. in microelectronics and composite materials technology will enable BAe to produce the new "hiltiles" st only a third or a half of the weight of existing

expected 10 start in 1986, with an in-service date of 1987-88. The economies of large scale production possible under the Memorandum of Understanding between the UK, Germany and the U.S. on the new generation of advanced air-to-air weapons could well be accentuated if "bittile" weapons are modified for anti-tank, surface-

Sidewinder-type missiles. Pro-

duction of the new missiles is

to-air, and air-to-surface roles. The U.S. is also interested in hyper-velocity weapons and the J.S. Air Force has requested \$8.2m in research and development funds in the 1982 financial year to start to develop a new hyper-velocity missile.

In military terms, the impact is likely to be greatest in air warfare. British Aerospace is already suggesting that the advent of "hypersonic hittiles" will call into question the viability of manned aircraft. especially as the cheapness and low weight of these missiles will enable very large numbers of

them to be deployed. Later in the century, lasers and particle beam weapons may start to displace conventional take responsibility for the work guided weapons, but those missiles that remain in service are likely to be of the small, cheap, thinking hittile variety.

Lynton McLain

Military aviation, including aircraft and missiles, is bnoyant worldwide, with many countries, especially in the Third World, building up their air power. This demand will ensure a continued high volume of business for the Western world's aerospace industries for the foreseeable future

Continued strong demand for combat aircraft

MILITARY AIRCRAFT

MILITARY AIRCRAFT activity. in contrast to the commercial husiness. world-wide, despile defence budgetary problems in some countries, and pressures for disarmament in others. Moreover, the overall long-term outlook for the military market remains good, especially with countries in the Third World increasingly interested in buildup their armaments inventories.

The fact is that in the currently unstable situation that prevails to many parts of the world, the climate for arms sales has never been beller, and among those sales military air-craft, especially light tactical comhat aircraft of low cost, and their associated armaments, rank highly

The problems confronting the military aircraft salesmen, how-ever, remain severe. There are significant some restrictions imposed on many military aircraft manufacturers. including those in the U.S. and the UK. as to where they can or cannot sell their wares, and governments are becoming increasingly conscious of the public's sensitivity towards arms

At the same time, many of the countries in the Third World that might be interested in buying, are themselves con-strained by lack of cash. While it is acceptable for them puli-tically to borrow money for commercial aircraft procure-ment, it is much more difficult to do sn for military hardware of all kinds. Nevertheless, arms sales

remain substantial, and the long-term outlook is good. One of the most detailed forecasts of the likely future strength of ket has been made hy Prail & Whitney Aircraft Group, part of the United Technologies group, and the world's biggest huilder of aero-engines, civil and military.

The company estimates that between 1983 and 1992, there will be a market for about 21,200 military alreraft of all kinds, worth about \$196bn (In 1982 dollars) of which about \$52bn will be spent on engines and the rest on airframes.

Biggest share

market is likely to be accounted for by tactical combat aircraft of various kinds, amounting to about 10,900 aircraft costing some \$124.4hn. The rest will include 100 strategic aircraft (such as long-range hombers) costing about \$17.7bn, 950 transport aircraft costing about \$26.2bn, and 9.250 other types (such as reconnaissance aircraft, trainers, liaison and communications aircraft), costing close to \$28bn.

British Aerospace, also aignificant military aircraft manufacturer. forecasis substantial continuing demand, amounling to an average of about \$30hn a year world-wide through to the end of this century.

These sums may appear to be high, but in fact the cost of military aircraft is rising, as the complexity of airframes. engines and weapons systems increases. The cost of a Tornadn multi-role combat aircraft, for example, can be as much as £15m in its F-2 Air Defence Variant.

One result of this rising cost problem is that increasingly developments lies the possi-

Aircraft market estimates 1983-92 Non-U.S. \$B Units \$B SB Units Units 70.3 10.900 124.4 10.7 950 26.2 Transport Total market 7,700 103.9 13,500 Turbine engine market estimates 1983-92 Alreraft Non-U.S. SB Units Nil 500 SB Units Strategic 17.4 13,000 Transport . 2,200 . 11,000 3.6 2.300 2.8 11,400 Other . + Figures In 1982 dollars.

efforts are being made to keep aircraft in service for longer periods, while spending the available cash on improving the weapons they carry to a much greater extent than hitherto. The aircraft is increasingly being regarded as a "weapons platform," with the development emphasis and hudge 15 being concentrated upon making it carry missiles and other weapons toads of greater supplistication and destructive

capabitity. Budgetary constraints in many countries are also influencing the rale at which new mllitary aircraft are being This is especially developed. in the Alllance, where defence budgets are already strained and have to he spread over a wide variety of programmes with mititary aircraft having in take their turn in the queue for

development cash. In the UK. West Germany and Italy, these budgelary constraints have already resulted in a stretching oul of the rate of Tornado multi-role comhat aircraft deliveries, although it is still intended to hulld the full 809 aircraft planned.

Nevertheless, throughout the U.S. and Western Europe, despite the heavy costs involved, several mainr new military aircraft programmes are already under way, and new ventures are being planned.

The highly successful Harrier the AV-8B Harrier II for both the U.S. Marine Curps and the RAF (which designates if the GR Mark 51, with 336 aircraft 60 for the RAF. This is a joint venture hetween McDonnell Douglas and British Aerospace. with McDonnell Douglas the prime contractor for the U.S. programme, and British Aerospace prime contractor for the RAF aircraft.

The first AV-RB for the Marine Corps is due into service in 1983, with the GR Mark 5 entering RAF service in 1986.

The two companies foresee a possible substantial export market for Harrier IIs looming. especially in the light of the superb performance by the Harrier and its maritime variant, the Sea Harrier, in the Falkland Islands earlier this also bave a new venture of summer. Perhaps as many as their own, the Avions Marcel 500 Harriers beyond those now envisaged could be sold, with the majority of the customers heing navics rather than tand-

Beyond the existing Harrier

bility of eventual supersonic

vertical and short take-off and (V/STOL). landing although some research work has been undertaken on this, the cost of such a venture will be high, and it is still probably several years away. Neverthetess, it is an option

in future Harrier development that cannot be discounted, and it is probable that pressures for it will grow through the 1980s. In Sweden, the new JAS fighter, attack and reconnais-

sance aircraft has been launched for the Swedish Air Force, with plans for an eventual 140 aircraft planned for the end of this century, although the initial contract calls for 30 aircraft. The JAS is being developed

by a new consortipm called the JAS Industry Group, comprising Saab-Scania on the airframe. Volvo Flyzmotor on the engine, and L. M. Ericsson, SRA Communications and the FFV equipment group on various parts of the equipment and components programme.

Through the extensive use ut new technology, the JAS will be smaller and lighter than the current Viggen series fighters it is intended replace, while offering better performance, including supersonic speeds at all altitudes.

Looking ahead, several major new programmes are either contemplated or under way. In the UK, British Acrospace. In conjunction with Rolls-Royce and several major equipment companies, has been developing as a private venture a new comto be huilt for the Marines and hat aircraft in replace the Jaguar jet strike aircraft, called the P-110. During the past summer, extensive discussions have been held with West Germany and Italy in annihe. attempt to win international collaboration on this proevolve a European Combal Airgraft or ECA had little success)

> The West Germans, who have programme of their own called the TKF-90, may now be ready to participate in a joint programme, as a result of severe defence budget constraints which will prohably preclude the development of an

all-German venture. Whether the French. whn Dassault-Breguet ACX experimental fighter (which it is claimed could fly within four supersonic bomber, designed in years and go into production in the late 1980s) will also join in is uncertain.

But at least efforts are being

craft embodying much of its technology and developed no an international collaborative hasis, of the ground. The arcraft is important for the UK

be the last major new military aircraft to be developed in this country until the late 1990s.

As Tornade production work peaks out and starts to run down in the mid-1980s, finally conting to an and around the coming to an end around the end of this decade the UK all the many equipment and component manufacturers-will need new work to take its place, craft of similar size and com-plexity, the military aircraft side of the UK aerospace

industry will sun down. Another major hope for the UK industry is that the British Aerospace Hark jet trainer and light combat aircraft, which is already in service with the RAF and has won several export orders, will finally be selected as the trainer for the U.S. Navy in its so-called VTX-TS pre-

In Western Farrege, Italy is developing a new light combat aircraft, the 4MX, to replace the Fiat G-91 and Lockbeed Brazil has joined in this programme. A first flight is due in

Aircraft such as the British a terospace Hawk and the Italian Brazilian AMX are examples of the light tactical combat aircraft which could have large sales over the remaining years of this century in the countries the Third-World.

Those countries cannot afford the higger, more complex and expensive types of advanced combat aircraft, but can afford the smaller, cheaper types, and It is for this reason that estimates of future sales tend to that the demand will come to the lacti-cal combat aircraft field.

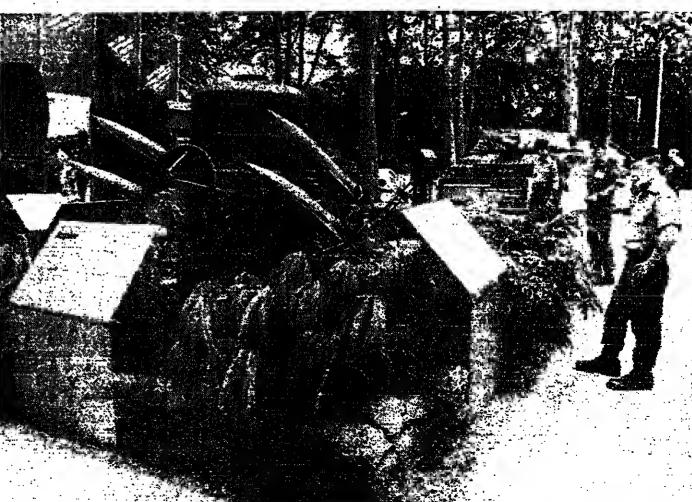
Tendency

The tendency in use existing types of combat aircraft from which to derive new developments is illustrated by the work now being done in the U.S. to find a new long-range. Qual-role interdiction and enmiss Schler, General Dynamics, which is huilding the F-16 fighter in quantity, has also descloped from it the F-16NL featuring what is called a "granked-arrow" wing, with improved range and weapons payload. This venture, financed by General Dynamics itself, flew this summer, and 🛎 to be lested by the U.S. Air Force against the McDonnell Douglas F-15E Strike Eagle comhal aircraft. The aim as to find an aircraft that can carry about twice the payload of existing fighters about 40 per cent fur-ther. The U.S. Air Force is funding the flight test programme, which will take about 10 months at Edwards Air Force Base, California

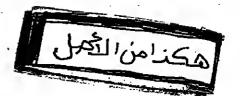
Also in the U.S., Northren continues development of the F-5G Tigershark as a low-cod tacheal Schier suitable for export by the U.S. to overseas countries, especially in the Third World.

Work is also now under way in the U.S. on the big long-range supersonic Rockwell BI-B cruise missies

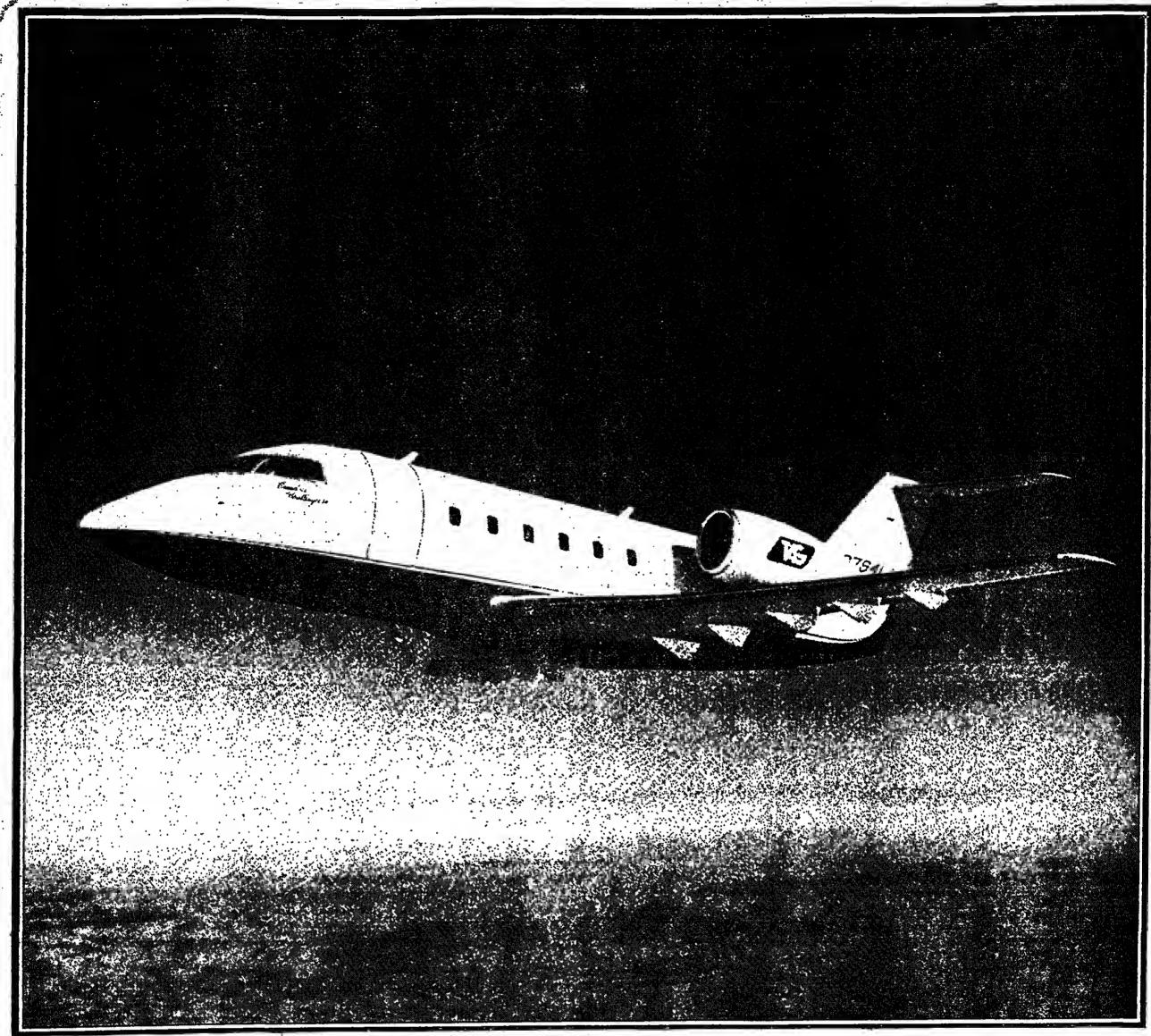
Michael Donne



The British Aerospace Dynamics Group's Rapler missile system which was deployed to such advantage in the Falklands conflict. It is seen here on display at the recent British Army Equipment Exhibition at Aidershot



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The "new frontier" of near-Earth space is becoming an increasingly significant arena, politically, economically and technologically, promising big business for the world's aerospace industries.

Lively competition in space

this century, the major space programmes of the world are likely to be dominated by the proliferation of near-Earth orbiting unmanned satellites. for an ever-widering range of uses, accompanied by a growing volume of manned near-Earth space activities.

While communications will head this tist of uses, both for telephone and data transmissions, and also increasingly for tete-conferencing and broadcasting, other uses are being and will continue to be found.

Weather forecasting is already well established but wide area of Earth resources monitoring is now attracting increasing attention. Activities in this field include seeking new mineral deposits. detecting fish shoals, and monitoring the onset of pests and agricultural diseases in underleveloped countries, to name

There are also many direct scientific tasks that both unmanned nrhiting spacecraft can perform, particularly to disover more about the near-Earth environment and how to use it more beneficially for mankind as a whole in the future.

Although in the past, most of the demand for satellites has emanated from the U.S., Western Europe, the Soviet Union and Japan, there is now an increasing desire by other countries, especially in the Third World, to possess satellites of their own, primarily although not exclusively for communications purposes.

As a result, it has been estimated that between now and the end of this century, there will be a world-wide demand for between 150 and 200 communications satellites alone, while if to this total is added the saletlites for other purposes, the total demand could amount to npwards of 500 spacecraft, creating a multi-billion dollar business (which some hare put at over \$60bn) for space hardware alone.

These requirements will also generate a demand for increased launching capabiliies. In the Western World, these are already being primarily met by the U.S. with both its Delta and Atlas-Centaur both its Delta and Atlas-Centaur rocket launchers, but now increasingly by the Space Shuttle, or Manned Re-usable Space Transportation System. which is to he the linch-pin round which the new U.S. Civil and Military Space Policy, dent Reagan, will be built.

With an eventual anticipated eclipsing in significance even the Manned Lanar Landing This bas already happened in Programme of the 1960s in its Western Europe with the eventual value in the exploita Ariane, which having been developed initially by the Europe Space Agency is now the

purposes by any nation.

The U.S. Space Shuttle-the manned Re-usable Space

Transportation System—will be one of the two means of launching Western World satellites and other spacecraft into orbit through in the end of this century and beyond.

The difference between the Space Shuttle and the Ariane is that the former is a manned re-usable system, whereas the latter is an expendable, unmanned system. The aim eventually is for the Shnttle to bring down the price of putting payloads into space, but at present, the expense remains very

high for both systems.

Nevertheless, the competition is already fierce, and Ariane-space has been highly successful in the past year in winning orders from major customers worldwide for safellite launch-

Arianespace aims to capture at least 30 per cent of the. Western world satellite launching market in the years abead. The cost squeeze imposed on NASA by the U.S. Government, and its own need for cash to further other space development programmes, including interplanetary probes to distant planets and various scientific missions, have already resulted in a decision to raise Shuttle prices to outside customers, while the original plan to achieve 487 missions over the

now been cut back to 312

believes missions by 1994. development cost of over \$14hn strongly that eventually, the The Shuttle programme (in 1980 dollars) by 1955, when Shuttle's operations, currently envisages a fifth launch, later It is likely to be fully function-ing as a commercial enterprise. run by the NASA, ought to be this year, carrying communica-turned over to the private com-tions satellites into space; five the Space Shuttle is the most mercial sector for marketing launches in 1983; 10 in 1984; ambitious space programme yet and operation, so as to make it 16 in 1983; 18 in 1985, and undertaken by the U.S., a more realistic commercial huilding up thereafter to about eclipsing in significance even operation. in the 1990s.

Many of these projects will be satellite launching missions, but a large number will also carry payloads for the Department of Defence, or various scientific missions. especially using the European-developed Spacelah which fits into the cargo bay of the big Shuttle Orbiter vehicle.

The increased cost of a total Shuttle mission from October 1, 1985, will now be \$38m, (in

1975 prices, the base-rate that NASA uses), which when adjusted for inflation means a 1982 cost of \$71m. This compares with the \$32m (in 1982 dollars) that a mission will cost up to 1985. This cost can be divided among all Shuttle users, when a multi-role mission is

NASA estimates hat the cost putting a communications satellite into orbit from 1983 will thus rise to anything between \$26m and \$41m, depending on satellite size. It says that these rates will be competitive for the charges for launching via the conventional Delta and Atlas-Centanr rockets and it also claims they will remain competitive with

the thurges set by Arianespace. The latter organisation now halds firm arders for more than 24 rockets, of which up to 13 will be launched by 1986, from the French space base at Ronrou in French Guiana. Konrou in many of carrying

Production of Arrane rockers is being increased, from the present 4.8 a year to between seven and eight a year from

Should demand increase (and everyone believes it will) Ariane output will go up to 10 rockets a year, matching the launching capacity that will be available from 1985 at Rourou. where a second launch facility now being built.

It has already been decided to enlarge the capabilities of Ariane, with the development of Ariane 2/3 capable of put-ting larger satellites into orhit from 1983. The development of Arrane 4 will follow. This will have more than twice the capability of the original Ariane 1, and will enable it to put spacecraft or other payloads m to orbit up to a total of 4,300 kilogrammes in weight.

The development plan pra-vides for the first Arrane 4 which the development will cost about \$250m. in 1981 prices) to be launched !210 in 1985 and become operational

early in 1986, Looking beyond these develop-ments, both NASA and ESA are examining the possibilities of eventually putting perma-nent manned stations into near-Earth orbit, and further detailed studies for these are already planned, NASA expects to put its requests to the U.S. aerospace industry soon, while the ESA will also be commissioning a study from European industry.

NASA and ESA have already exchanged views on matters at the highest and it is possible, but by no means yet settled, that there will be collaboration between the U.S. and Western Europe

in this field. The most likely eventual course would he for the U.S. to launch the space station, with parts of it being contributed by Europe — as was done for example, in the case of the Shuttle, which uses the Eurnpean-developed Spacelab. While there will continue to be fierce competition between the U.S. and Western Europe for satellite manufacture and satellite launches. co-operation with con-tinue in a wide variety of

Michael Donne

own space launching capabiltties, with the development of Throughout the rest of this

century, imited launch facilities available elsewhere (such as in Japan), and those provided by the Soviet Union and China for their own programmes may offer facilities to other countries), it seems likely that the Space Shuttle and the Ariane will be competing as the Western world's major launching

Looking ahead

After its fourth successful test flight earlier this summer. the U.S. Space Shuttle is now regarded by the National Aeronautics and Space Administra-tion as operational, although there are some problems still tn be overcome. One of these is the need to improve the "turn-round" time between missions—something that Mr James E. Beggs, the adminis-trator of the NASA, regards as essential if the Shuttle is ever recently, announced by Presi to make money on a com- 13 years to the early 1990s has mercial basis.

Mr Beggs also

tion of near-Earth space. developed initially by the EuroPresident Reagan's Space pean Space Agency is now the
Policy is aimed not only at operational responsibility of
making near-Earth Space an Arianespace, a commercial comopen arena for commercial and pany set up in 1980 with scientific space activities by all industrial and banking as well nations, but also to ensure that as government shareholders

it is not used for hostile from 11 countries, with whom Now, however. Western place contracts for their Europe has rapidly improved its launches.

other space activities.

increased the areas to be tested

in the new airship. Skyship

500 is a prototype airship and

it is also a flying testhed for the new materials, construction

techniques and design ideas.

Airship Industries, as a result, has the task of proving

the new technology as weit as

the general concept of the arr-

ship as a commercial form of

transport or as a craft with

In addition, the company has

to prove to potential users that

its chosen route to airship

design-the non-rigid envelope

design of Skyship 500-is the

Nevertheless, the new design

features of Skyship 500 appear

to work as their designers pre-

dicted, aithnugh few perform-

ance figures have been pub-

far these design ideas and

materials can be extrapolated

successfully into larger and

potentially more commercially.

viable or asemi airship designs

is severely limited in its com-

mercial and military applica-

tions and is very much a

prototype. It has a top specd

of 63 knots, 72 miles an hour:

a limited range; and a payload

of 10 seats, as a result of its

small size. 164 ft long and 46 ft

At the moment, Skyship 500

What is less certain is how

lished by Airship Industries.

military applications.

best way forword.

Airships are back in the news again—Lynton McLain explains why.

Push to get financially airborne

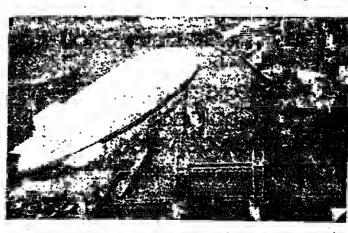
EARLY THIS apring an airship flew serenely over the City of London, not on a passenger flight, but simply to fly the flag of its corporate owner. Airship Industries, in the hope of raising support, and much needed money, from City investors.
The event was unremarkable

in itself-airships make little noise and disturb few people. It was remarkable, however, as the first flight of e British-made airship over London for over half a century.
The flight raised hopes for the

airship's designers, builders and financial sponsors of visible progress towards passenger and freight-carrying airships later this decade and into the 1990s. It also underlined the crucial importance of risk finance for airship development.

The reality of airship develop-ment, however, is still a long way from these ideals. The main stumbling block slowing the development and commercial and military acceptance of airships is the weakness of the commercial and tactical case put forward by airship supporters and the continuing viability of existing modes of transport. It is a disappointing fect for air-ship supporters that the com-mercial henefits of airships remain almost ea uncertain this design concept, in lifting gas lifting gas and it is nimest autumn as they did a year ago and in their materials of con-certain that flammable hydrowhen Skyship S00 — Airship struction. The only similarity gen gas, as used in the R101 Industries only airship and the is that both craft were and other airships of its generaone which flew over the city took to the air for the first time. hanger at Cardington. This first anniversary has

Skyship 500 took to the air on air craft. September 28. Almost exactly The non-right envelope is 51 years earlier, on October 4 made of a new polyester 1930, enother British airship, malerial from France. The



Skyship 500, designed and built by Airshlp Industries on its first flight over the City of London in April. The 50 metres long craft has a top speed of 72 miles an hour and can carry up to 18 passengers.

parhaps the most famous of all. gondola carrying the crew and the ill-fated R101, took to the air passengers with a total of 10 on a maiden flight to India from seats. is made of Kevlar, a on a maiden flight to India from Cardington, Bedfordshire, The flight ended in tragedy when R101 crashed at Beauveis, north of Paris with the loss of 47

lives. It would be invidious to liken Skyship 500 with the doomed R101. The two craft could hardly be more different io assembled in the same huge

The design of Skyship 500 was some poignancy for those bop-ing for a revival of the airship of new rechnology, new for the Skyship 800 craft has as a tool for commerce, in-materials and new technology, new for the Skyship 800 craft has dustry and military authorities. not used before on lighter-than-

'fine materials,

lightweight high-strength fibre made by Du Pont of the U.S. The tailfins and bulkheads are made of a light and strong

honeycomh sandwich material. Only the engines. Porsche motor car power units, are conventional, driving ducted-fans. Non-flammable helinm is the tion, will not be used again on

enmmercial airships. The use of lightweight

the greatest possible use of the liftung capabilities of the The non-time envelope is lighter-than-air belium gas. The decision to go for new

in diameter, and limited volume for lift. Airship Industries has plans for a Skysnip 600 craft and a Skyship 5000, the laiter designed to carry 200 passenpers and a payload of 25 tonnes for a total construction cost of

Keith Wickenden, the CONTINUED ON

instruments and systems for Aviation since 1910. Today the company supplies over 450 airlines and air forces flying 150 different types of aircraft operating in 150 countries.

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rapid change and development,

the airborne equipment and

being developed world-wide.

Acronyms and abbreviations

CONTENTS -

Addenda

1981-82

CIVIL AND MILITARY

Systems and equipment

improvement.

SYSTEMS COMPANY

FIRST EDITION Edited by Michael Wilson

In the past decade aircreft design has been revolutionised by huge strides in electronics technology, particularly in micro-electronics. The safety, reliability, convenience and economic effectiveness of commercial aircraft, and the military . effectiveness of bombers and fighters. have all benefited from the radical

new technology now available. Less than five years ago the world's first aircraft to rely entirely on electronics for control went into service. This month sees the delivery to an airline of the world's first 'digital' airliner, setting new standards in economy: the story is one of

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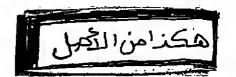
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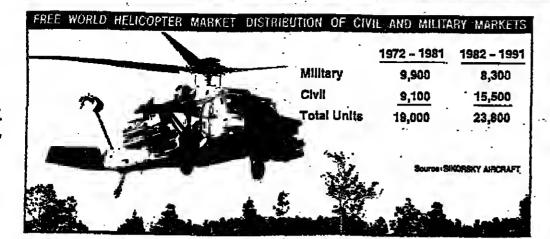
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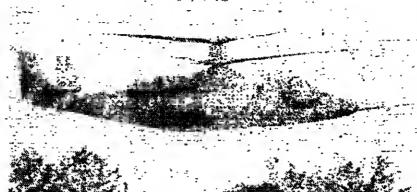
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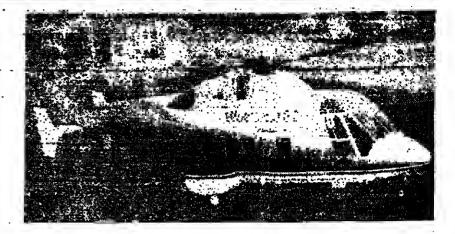
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Sikorsky Aircraft of the U.S. is now developing an advanced belicopter concept, (left), with contra-rotating blades, to give improved performance. Right, the Westland 30-a new helicopter for commuter airlines throughout the World from Westland Helicopters of Great Britain. In production for British Airways Helicopters, Airspur Inc. of Los Augeles, SFO Relicopters (San Francisco), and other operators, the W-30 seats up to 17 passengers in wide-body comfort

for helicopters

THE WORLD'S belicopter civil side, in the mid-1980s and significant military belicopter manufacturing industry has beyond. been less affected by the recession than its fixed-wing counter-

several factors. The first is that One example is the recent

anticipated through the next

decade. creasing use is already heing made of helicopters. Their use in the off-shore oil and gas support industry is now almost legendary - those industries could not have been exploited so rapidly without the rotarywinged aircraft-and the list of other uses is growing rapidly.
General coostruction, timber harvesting, utility applications (such as police work, coast-guard, customs, harbour patrols,

has transport and general aviation the industry. industries.

operations.

the needs of such markets.

site materials, giving greater

gether with new engines giving improved fuel efficiency, are all increasing the attractiveness of

io particular, the helicopter in-

uses for helicopters, while a example, noise is still an area major new market is also to which more attention needs developing in corporate and to be paid, especially before executive transport as new air- direct city-ceotre commercial craft are tailored specifically to operations can become widely acceptable—the overall "social New technology and in par-ticular the use of new compoacceptability" of the helicopter

is improving. One estimate of the future weight savings and thus helping military and commercial tur-to reduce operating costs, to- bine-engine belicopter market suggests that between 1983 and 1992, the total demand could be as high as 17,000 aircraft, wurth

helicopters for commercial \$17bn. But as with other types of Moreover, in the past decade aircraft and eogines, both com-particular, the helicopter in-particular, the helicopter industry has matured, in the development costs of new ven-sense that this type of aviation is no longer regarded as un-cases, are becoming prohibitive usual or even daogerous, and for individual companies. One has become increasingly result of this is that interaccepted by the public at large, national collaboration is rapidly by the military, and by the air emerging as a major force in

This not unusual jo Western While there may still be some Europe, where the UK and

are now among the every-day problems to be overcome—for France (Westland and Aerospatiale) some time ago collaborated on the development of the Gazelle light helicopter, the Puma tactical transport aircraft and the Lynx multi-role aircraft, and where Westland and Agusta of Italy are also now collaborating on the devel-opment of the new EH-t01 as a Sea King anti-submarine war-fare belicopter replacement. with civil versions also planned. But the possibility of trans-

atlantic helicopter collaboration is also now looming. At the Hanover Air Show earlier this summer. Mr Robert F. Daniell, president of Sikorsky Aircraft, one of the world's big-gest, belicopter manufacturers, said that his company was "ready and willing to share its technology and production acti-

vities with world-wide allies." Sikorsky is seeking industrial pariners to produce its modern line of belicopters (including the S-76 commercial turbine aircraft and its H-60 Black Hawk series of advanced technology utility transports), as well as to help develop new

models. We are not just seeking short-term co-operative efforts." said Mr Daniell, "We are also looking for long-term collateral development agreements on preseot and future programmes."

Mr Daniell made it elear that in Sikorsky's view, the costs of research and development were now such that every R & D dollar had to be used to its full potential

It should not be spent duplicating helicopter technology for each country just for the sake of it. No one can afford that type of R & D redundancy."

This message has not been lost on the European helicopter industry, especially in the mill- of the aircraft is expected to and other loads that these tary sphere, where the Anglo- seat about 30 passengers. The rotary-winged platforms will italian EH101 is the latest programme is lakely to be sub- carry. collaborative venture to he stantial, costing several hun-established. dred million pounds, and it will

commercial and military version of the EH-101, stons of the aircraft are planned. Westland is putting much am to merease the unmbars cold tween the two countries could come.

milch greater load-carrying aircraft through the decade capacity, and will carry the new lik-developed Stingray torpedo. In the military field, the role

as well as advanced sonic equip-WORLD HELICOPTER

MARKET

Estimates of values, 1982-91, in 1931 dollars

U.S. Europe world 6.6hn 2.8bn 3.1bn Military 7.6bn 5.0kn 6.5hn (Source: Sikorsky Aircroft, U.S.)

ment. It will be used on the new class of Type 23 frigate now under development for the Royal Navy, A new company, EH Indus-

tries, has been set up by West-laod of the UK and Agusta of Italy to run the Ell-101 programme. The first flight of the aircraft is expected in 1984/85. and first deliveries to military customers is expected in 1987/ 1988. The commercial version

Mr John Nort, UK Secretary generate considerable demand fur Defence, reaffirmed earlier for advanced avionics and this summer that this new anti- equipment, and provide consubmarme warfare belicopter timuity of employment for the would go ahead, and that it was UK and tratian helicopter inhoped that a joint contract be- dustries for many years to

stons of the aircraft are planned. Westland is putting much emitto increase the numbers sold phasis on the civil W-30 and keep costs down.

We Now sold the civil W-30 is development of the civil W-30 is development. and keep costs down.

Mr Nott said that the new aircraft would be heavier than has already entered service with British Airways Helicopting Sea King it is derole military aircraft. The W-30 the existing Sea King it is designed to replace, but it will be ters in the demanding North more agile, enabling it to operate from small ships safely in had weather.

The Ell-101 will also have a market demand of the W-30 will event and the content of the western bundled.

In the military field, the role of the helicopter is also widenlog, and increasing use is being made of this type of aircraft as reconnaisance, anti-tank war-fare and tactical assault transports overland, as well as in ann-submarine warfare at sea. With eight major manufac-

nurers (Westland of the UK; Agusta of Italy; Aerospatiale of France; Messerschmitt-Bolkow-Blohm of West Germany; and Bell, Boeing-Vertol, Hughes and Sikorsky of the U.S.) and several smaller manufacturers in the U.S. and elsewhere all competing for what is expected to be a market for upwards of 600 sircraft a year outside the U.S. (in that country the demand will be substantially higher), the market is expected

to be tough. It also seems likely that fewer entirely new types will emerge as development costs soar, and that the in-service lives of existing types, or their derivatives, will be extended with much greater emphasis heing placed on the weapons

Michael Donne

Expansion ahead

parts, although the rate of growth which to the 1970s was running at about 5 to 6 per cent a year has slackened.

But with a continuing demand for military helicopters, and a widening range of uses for Falklands Islands situation, commercial helicopters now where the recapture of the conimercial helicopters now where the recapture of the emerging, must manufacturers islands would bave been made believe that the long-term much more difficult, if not virtufuture is bright, and that an ally impossible, without the use annual growth rate perhaps even higher than that prevailing before the recession might

Skyship 5000 could nffer an air

service hetween London and Paris for pasengers at £30

The total capital employed in

The management of the com-

This confidence is based on

in the military sphere, armed forces world-wide are now plac-ing much more emphasis on the use of helicopters as logistical "work-horses," troop carriers and combat weapons systems. of helicopters as anti-submarine warfare aircraft, troop ferries, ing before the recession might and as "gun-ships," overland, fire-watching, traffic surveilbe achieved, especially on the As a result of all these factors, lance and ambulance duties!,

Push to get financially airborne continued from previous page

which holds just over 11 per cent of the equity in Airship Industries, is convinced that the of Belgium, Walloon Regional Government Initially, the Walloon Regional Government subscribed and was alrships built with frame. Aluminium alloy would each for £406,250 in cash. The

Production of this larger and Belgians have an option to buy potentially commercial airship a further 29 per cent of the could start in 1984. Many of these developments Airship Industries is approxim- are for the future. In the mean- the conceptual design of this arely £8m, with just under half, time a recent development 41 per cent of this held by which has effectively split the institutional shareholders. embryonic alrship movement which has effectively split the embryonic alrship movement

into two distinct camps is the

company based for the time being on the Isle of Man and committed to the concept of

used for the rib framework of the rigid R-30 airship proposed by Wren Skyships and an alloy skin would also be used. The company has completed

proposed rigid airship for use

as a maritime patrol craft.

R-30 would have a lifting volume of 1m cu ft of hellum. pany hold a quarter of the formation of a new company to hased on a frame 337 ft long, equity and 20 per cent is held design and build rigid airships 75 ft in diameter, with four fins Borrowings stood at £550,000 This break-away movement is nacelles. The top speed would in March, when the company announced an extraordinary former chairman of Airship vary from 15 tonnes, when the development which could result industries with 3.6 per cent of craft would bave a range of 250

chairman of European Ferries in the investment of a further the equity in the company. He miles, to a crew of 13 for patrol seeking a total of £12m to fund which holds just over 11 per £2.5m in airship designs by the now runs Wren Skyships, a duties when the range could be the rest of the development, as high as 4:300 miles.

The move away from non- of the first R-30 airsbip, rigid airsbips of the Skyship 500 Substantial amounts of tooldesign to rigid designs with ribbed metal frames was based on the belief that non-rigid designs would be limited in size to craft with about 30m tonnes maximum payload.

Also, rigid alrships would be designed and built on "absolutely conventional aviation grade technology," Wren Skyshlps sald recently. There would be no need for the designers to try new technology, certainly from raising the money and not until the concept of the that proving the commercial rigid alrship had been proved. case for the airship is still the Wren Skyships is currently most crucial task,

detailed design and production

ing are likely to be needed for and the company estimates that as much as £21m would be needed to produce 50 R-30 craft. which would sell at £4.5m each.

The company claims to have identified a total market for 200

ABOARD THE SUPER 80,



GENERAL AVIATION

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COSTS OF BUSINESS AND LIGHT AVIATION

Physical and the second	Seats	Speed in knots	Range in nautical miles	Capital cost (£)	Annual fixed cost (£)	Hnurly cost (£)
Twin-engined: Piper Cheyenne III	n	290	2,240	1,020.000	37,890	190.45
Piper Navajo Chieftain	. 8	220	1,415	250,000	27,700 -	138.30
PA 34 Seneca III	-5	193~	990	135,000	9,300	80.31
PA44 Turbo Seminole	4	185	820	105,000	8,250	53.85
Single-engined:		•			•	, .
Piper Warrior	4	127	640	35,000	7,195	25.67
Piper Arrow IV	4	143	.935	60,000	11.495	36.20
Piper Saratoga SP	6	150 -	960	75,000	7,712	50.47
Source: CSE Aviation, Oxf	ord.			·	· .	

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Feeder - commuter fixed	d				14.0
wing	. 1,100		3.600	10.9 4.700	
Business-utility fixed win	g 10.500	26.4	5.000	10.5 15.500	
Helicopters	7.800	7.8	9,500	9.5 17.300	
Total market	19,400	37.8	18.100	30.9 37.500	68.1
Turbine engin	e marke	t esti	nates	1983-92	
Aircraft		<u>. </u>	Non-	U.S. U	.S.
type	mari	tet	niar	ket mar	
~ -	Units	SB	Units	SB Units	
Feeder - commuter fixed	1				
wing	. 3,100	0.8	9.400	2.3 12.500	3.1
Business-utility fixed wing	22,600	5.7	10.700	2.4 33. 3 00	8.1
Helicopters	12 700	1.4	15.500	1.7 28.200	3.1
Total market	. 38.400	7.9	35,600		14.3
*	(1982 de	ollars)			
Source: Pratt and Whitne	w Airer	aft (ir	ոսը (Լ	i.S.A.)	

Lynton McLain examines the impact of the decline in economic activity. the rise in fuel prices and the high cost of operating aircraft in the general aviation category

International demand for general aviation aircraft has plummeted

pleasure has plummeted in the U.S. and the industry faces its most teating time for years. The U.S. is the world's main light aircraft manufacturing base and is the main market for general aviation aircraft, ranging from turbojeta and turboprops to single-engined piston aircraft.

Exports from the U.S. have also fallen, reflecting the decline in economic activity in world markets for business and light aircraft

The previous high rates of growth in the fleet of general aviation alreraft in the U.S. have slowed subatantially. Total flying time by these aircraft has dropped sbarply as companies operating the aircraft retrench in the face of limited or zero growth in their own sectors,

These trends reflect the impact of the decline economic activity, the rise in fuel prices and the bigh costs of operating aircraft in the general aviation category.

The sector embraces alreraft for use by companies and individuals on business, for pleasure, for use as agricultural spray platforms, as commuter carriers, air taxls and as platforms for specialised industrial work such as surveying, photography and pipeline patrols.

The decline in economic activity has forced many users, but especially those using aircraft for business purposes, to re-assess the cost-effectiveness of the aircraft at a time when to cut costs. The need for these re-

Business aviation is in the doldrums in terms of economic activity

ments does not, however, suggest that the days of companyowned business aircraft are

Forecasis by the U.S. Federal Aviation Administration (FAA) market constituted a solid predict that growth in the underpinning." general aviation sector as a whole between 1981 and 1993 will average 4.4 per cent a year. At this growth rate the equipment has dwindled to FAA eatimates that the fleet of 10,000 aircraft a year over the with sales prices down as much

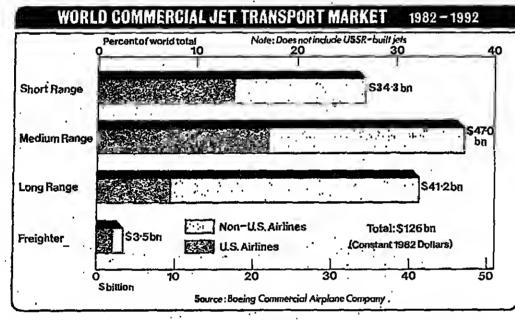
turboprop aircraft is expected set many months ago. 10 double to 9,500 by 1993 and the number of turbojet aircraft offs in the manufacturing comdouble to 6,300 over the same and in what was until recently period. These are the categories a of aircraft favoured by business segment as well. operators who are likely to "A slack economy, cutbacks to continue rising from the the ske provide much of the new in capital spending, persistence 210,300 aircraft active in 1980. activity. usiness when the recession

Meanwhile, "business aviation is in the doldrums in terms Mr Winant said. of economic activity," according to Mr John H. Winant, presi-

FORECAST SIZE OF U.S. FLEET OF GENERAL AVIATION AIRCRAFT,

1982-1993

Forecast as of		Piston——					flotoreraft	
January 1	Total	Single-engine		Turboprop	Turbojet '	Piston	Turbine .	dirigibles, gliders
1982 ·	220.4	173.9	26.6	4.8	3.3	3.0	3.5	5.3
1983	226.4	178.0	27.6	5.2	3.4	3.1	3.6	5.5
1984 .	233.2	182.7	28.6	5.6	3,6	3.2	3.7	5.g
1985	241.6	1gg.9 ·	29.6	6.0	3.8	3.3	3.9	6.1
1986	250.3	195.2	30.7	6.8	4.2	3.7	4.2	6.8
19 87 .	260.5	203.0	31.8	6.4	4.0	3.6	4.0	6.5
1988	271.6	211.2	33.1	7.2	4.4	3.9	4.5	7.3
1989	284.6	221.1	34.6	7.6	4.7	4.1	4.7	7.g
1990	300.3	. 233.0	36.4	8.0	5.I,	4.4	5.0	8.4
1991	317.3	245.8	38.4	8.5	5.5	4.7	.5,4	9.0
1992	334.7	259.0	40.4	9.0	5.9 .	5.0	5.7	9.7
1993	352.7	272.7	42.4	9.5	6.3	5.3	6.1	10.4
Source: I	AA.							



Alreraft Association of the U.S., in the U.S. last year, with inin a speech to business aircraft creases of 15 per cent and 19 of orders for new aircraft, particularly for turbojets, boistered business aviation through 1981 and a strong used aircraft

All this had now changed however, Mr Winant said. "Booking of orders of new snail's pace; the used. aircraft market place is in disarray. In particular the number of from the original asking figurea

There are also deep layis expected almost to munity for fixed wing aircraft burgeoning belicopter · and

of high interest rates and soft- Estimates from the FAA the used aircraft market have all taken a toll,"

Turbojets and turboprops were the only two categories dent of the National Business of light aircraft to show growth

put of 389 turbojets and 918 turboprops in 1981. Output of and multi-engined piston-powered light aircraft fell substantially, however, to bring the total ontput of general aviation aircraft in 1981 to 9,457 aircraft, a fall of. mainly for business use, con-

The FAA in its latest forecast piston predicts that production of light alreraft in the U.S. this year will drop by over 13 per cent to Already there is evidence 3,200. This compares with the that greater use has been made output of 7,402 in 1970, the of these more advanced sircraft owest annual production for a

Despite the predicted drop craft for business, pleasure duties in the U.S. is expected to continue rising from the suggest that 214,300 aircraft may bave been active last year, 220,400 aircraft this year and that an estimated 352,700 aircraft witt be active by 1993. Personal flying is the primary

role of general aviation aircraft and accounts for 46 per cent of operators earlier this summer, per cent respectively over the all flying, followed by business "An extremely large backlog previous year to give an out- use with 23 per cent and aerial spraying with 7 per cent of all

> This mix of applications is likely to change in favour of business aviation if the recent growth in the sales of advanced turbojet and turboprop aircraft. tinues, while single engined aircraft used for personal and sports flying suffer in the face of the recession,

than of the less sophisticated types. The National Business Aircraft Association, using FAA in output the total fleet of air- data, shows that turboprop aircraft were used three times aa general light aviation much as general aviation airthe slowdown in business

> The larger the aircraft the more accentuated was this difference. Twin-engined turboprop alreraft with over 13 seats flew five times as much as the 190.5 bours average for light

much less well developed than general aviation aircraft are registered in Britain, with almost two thirds used for private and business purposes.

These aircraft have access to over 200 airfields in Britain and an estimated 2,000 or more airfields throughout the Conto the Manufacaccording Geoeral Aviation turers' and Traders' Association based near Aylesbury.

Most of these airfields are within easy access of centres of rapid transport link for business executives wishing to avoid the queues and the hassle of major airports such as Heathrow,

The association says that general aviation in Britain is not dominated by leisure and sport flying. These activities account for only 10 per cent or less of all light aircraft operations in the country compared with business aviation, which

Turbo jets and turbo props were the only two categories of light aircraft to show growth in the U.S. last year

accounts for 65 per cent of all the hours flown by light airtween points which may have and although Midland's finanno formal air connections, the cial losses are containable, the business: other banks association says. At the same psychological damage is not training their sights on time access to a business aircraft makes it possible for business executives to tailor their journeys so as to fit complex multi-stop journeys into their working days. Provided the company has

done its sums this approach could save time and money and could increase substantially the productivity of the executive. The company has to compare business aircraft costs with the total costs of using conventional transport, a commercial airline taxis to and from alroorts and possibly a night in a hotel because a return flight is not possible within a aensibly long working day.

Air taxi companies offer a similar service to business executives but without the executive incurring the costs of owning a business aircraft.

Britain has over 100 specialiat companies offering air taxi services based on 250 light airmulti-engined much as general aviation air-craft on average in 1980, despite to helicopters. This fleet carries over half-a-million passengers and 4m kg of freight throughout Europe, Africa and the Middle East each year.

The air taxis are available on an ad hoc basis or on regular charters to provide a personal service and a role the commercial airlines do not offer..



150-seater airliner in which several manufacturers are showing considerable interest for the

Bankers had predicted that \$160bn in new cash would be needed to purchase aircraft worldwide in the next decade-but these estimates are being scaled down, as Alan Friedman reports.

Airline financiers are taking an increasingly cautious viewpoint

These words come from Mr Tony Cooper, head of Midland Bank's aerospace finance de-partment. They seem some-how rather more than poignant coming from an acrospace banker seated at a table just

Beyond the unfortunate tale of Laker Airways, however, is the more alarming financial world airline industry. Braniff (Big Orange) has declared bankruptcy and several other U.S. airlines are facing similiar collapse.

growth of many airlines in

ful about the long-term outlook, bankers are now acaling down predominant when it comes to this estimate as too optimistic, export credits for Airbus deals, Banks auch as Citicorp, Chase continue to play a prominent lending around 80 per cent is "Don't be brave, be smart"

"OUR MOTTO this year is role in the financing of new and backed by guarantees from the don't be hrave, be smart," replacement aircraft purchases Export Credit Guarantee Debusiness is hecoming increasingly cautious.

> nated UK agent for the financ-ing of aircraft from Airbus Industrie, is a case in point. Mr only

Bankers are likely to

seek more and more

guarantees for aircraft.

market leaders. In the UK both

The recession continues to affect air travel. The dramatic recent years is resulting in a text-book case of overcapacity. All this in turn raises a large question mark over the hitherto plamorous business of airline

wisdom was that of a total of \$160bn in new cash would be required over the next decade to finance the purchase of air-

loan packages Lloyds Bank and National Westminster Bank have recently taken business away from Mid-

land.

Lloyds Bank, which says It will be taking a more aggressive Until recently the accepted stance, recently completed an \$85m 10-year credit for Air India as part of an Airhus finance package. For a variety of reasons

replacement aircraft purchases Export Credit Guarantee De-but every aircraft banker in the partment (ECGD). A further 15 state carriers and the balance. Midland Bank, as the desig-

Mr Cooper claims that this aircraft book "is as solid as craft. Training accounts for 20 yards away from a desk-lop Cooper revkons there will be a per cent of the time and agricultural aviation and other Skytrain.

Business aircraft are "timemathines," offering the contenience of direct travel heLaker Alrways last February

Training accounts for 20 yards away from a desk-lop Cooper revkons there will be a the Rock of Gibraliar." He is not district finance deals ber of aircraft finance deals Bank's exposure. What about for the next few years. "We the precarious state of several airlines." This does not threaten our book down but our book is remained of direct travel hetween points which may have and although Midland's finance. Not confirm the Rock of Gibraliar." He is not our book of the next few years. "We precarious state of several airlines." This does not threaten with the received a fair amount of our book down but our book is remained to the Rock of Gibraliar." He is not our book of the Rock of Gibraliar. The is a case in point. In the Rock of Gibraliar. The is not our book of the Rock of Gibraliar." He is not our book of the Rock of Gibraliar. The is not our book of the Rock of Gibraliar. The received about Midland are not deliberately running airlines. This does not threaten running our book down but our book is received a fair amount of our book down but our book is guarantees.

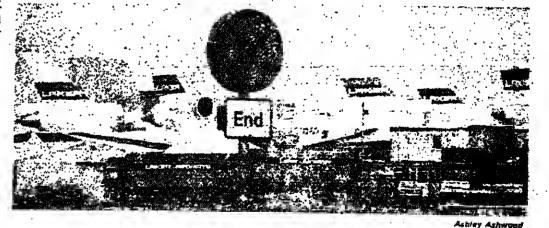
Where I've you ECCO traver guarantees. 'Where I've got ECGD cover

I shrug my shoulders and don't care," says Mr Cooper. " Where I have to put up front end money I'm damn cautious," he adds with a smile.

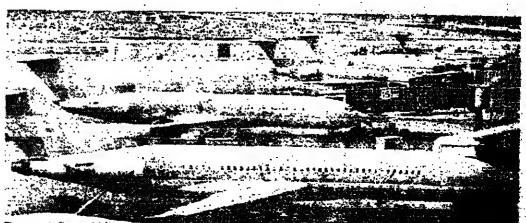
Airbus deals Midland handles 20 per cent of the financial package normally; the rest is shared among French and West German banks. Government guarantees on Airbus transactions usually cover 624 per cent of the purchase price.

Looking ahead it would seem that bankers will seek more and more guarantees for aircraft loan packages. New money may come from airlines' interna resources in part but the bulk will have to come from government guarantees, grants and from borrowings on the international capital market

Being an aerospace banker craft worldwide. While the air- Lloyds was able 10 offer more it may not be quite as encraft makers may remain hope- attractive terms than Midland. threiling a proposition as it was threiling a proposition as it was during the go-go period of the last derade. Mr Cooper still takes pride as he strides out of Since 1979, when Midland set Midland Bank with a new air-Manhattan, Midtand Bank up its specialist Airbus depart- craft finance package tucked Credit Lyonnais and Bankers ment, it has extended a total of under his arm, but his new Trust in airline finance may \$2bn of aircraft loans. Of this motive echoes eerily behind him:



Laker Airways aircraft standing outside their hase at London's Gatwick Airport. Beyond the unfortunate tale of Laker Airways is the alarming financial condition of the world's airline



Boeing 727 aircraft of Braniss International at Dallas/Fort Worth, Texas

		WORLD	JET AII		YPES AVA	ILABLE		
• •		· · · · · · · · · · · · · · · · · · ·	·	DURING THE	1980s			
CATEGORY SHORT-RANGE (up to 2,000	TYPE	CURRENT MAKER	ENGINES	NUMBER OF PASSENGERS ‡ (approx.)	TYPE	POSSIBLE FUTURE MAKER	ENGINES	NUMBER OF PASSENGERS ‡
nautical miles approx.)	One-Eleven	British Aerospace	Two	89~119	7 DASH 7	Boeing	Two	150 (c)
approse/	F-28	Fokker	Two	65-85	A-320-100/200	Airbus Industrie	Twe	150 (c)
	DC-9-30/80	McDonnell Douglas	Two	105-172	D-3300	McDonnell Douglas	Two	150 (c)
	737-200	Boeing	Two	115-130	DC-7 RE(a)	McDonneti Douglas	Two	105
	737-300	Boeing	Two ·	121-148	TA-9-100	Airbus Industrie	Two	410 (c)
	747 SR*	Boeing	Four	450		•		
	146-100/200	British Aerospace	Four	71-109	 · · · · · · · · · · · · · · · · · ·			
MEDIUM-RANGE	727-200	Boeing	Three	140-189	DC-10 Derivatives	MeDonnell Douglas	Three	250 (e)
(Up to 3,500	757-200	Boeing	Two	224	767 Stretch	Boeing	Two	250 (c)
nautical miles	767-200	Boeing	Two	255	TA-9-200	Airbus Industrie	Two	400 (c)
approx.)	A-300-2/4/600	Airbus Industrie	Two	220-336	727 RE(a)	Boeing/Lockheed	Two	140-180
	A-310	Airbus Industrie	Two	195-255				
	DC-10-10	McDonnell Douglas	Three	250-409		•		•
	L-1011	Lockheed	Three	250-400	·			
LONG-RANGE	747-100/200	Boeing	Four	452	767 HGW(b)	Boeing	Two	250 (c)
(Over 3,500	747 SP§	Boeing	Four	330	DC-10 Derivatives	McDonnell Douglas	Three	250-400(c)
nautical miles	DC-10-30/40	McDonnell Douglas	Three	250-400	747 Derivatives (d)	Boeing	Four	500 (c)
apprex.)	L-1011-500	Lockheed	Three	250-400	TA-11-100/200	Airbus Industrie	Four	220 (c)
·					TA-12	Alrbus Industrie	Two	220 (e)
FREIGHTER	747 F/C	Boeing	Four		. —			
	DC-10C	McDonnell Douglas	Three		757/7 <i>6</i> 7F	Boeing	Two	
	A-300C	Airbus Industrie	Two					

Numbers of passengers are approximate only: configurations vary very widely between airlines and according to aircraft version used. (a) Re-engined. (b) High Gross Weight. (c) Final configurations not yet determined, with designs still undergoing changes. (d) Stretched Upper Deck 747 already in produ

 \mathbf{XI}

Lynton McLain examines the scale of spending forecast for the expansion of international airports.

Airport planners remain optimistic

WORLD AIRPORTS are emerging airports is likely to be worth trading periods for many years. 2000. Passenger and air freight diate return to the buoyant rates

of growth of the late 1970s. Nevertheless, airport planners programmes are underway in predict confidently that growth most countries of the developed will return to the passenger and and developing world. Some of that for air freight markets. This con- the projects, such as that for fidence is supported by recent the second Bangkok internamodest returns to growth altional airport, are on green-field ready noted, ahead of this year's sites and will involve multitradional summer peak, and millon dollar programmes, by the scale of spending fore-Other projects are more modest

Norman Payne, the chairman of the British Airports Authority, the British Airports Authority, in his latest annual report.
This showed that passenger traffic at the authority's seven airports in the UK increased by I per cent in the 1981-82 financial year despite the "continued depressed state of world economies and only tentative indications of an improvement in the UK's economic health," Mr Payne reported.

· About-turn

The modeat about-turn in the fortunas of airport operators so-far this year is illustrated by recent figures for traffic at Heathrow Airport, London, the BAA's main airport and still in the world, with 22.5m international passengers last year despite the slump in demand for

The sharp drop of 9.5 per cent in air transport movements sortium are Consulplano of at Heathrow in 1981 compared Lisbon, Portugal; China Airwith the previous year has been port Engineering Consultants

compared with 1980 has been Airport Authority. reversed this year, with pas-senger volume 6 per cent up in airport projects currently June compared with the corres-underway are those involving ponding month last year.

that traffic is returning to and historic patterns of growth, with developing air transport. They also underline the need systems. for increased airport capacity. Forecasts from airport authorities suggest that the total market for new airports tourist airport at Tabarka in and at Agadir, Morocco, the and for the expansion of exist- north west Tunisla. The airport BAI is on the sbort list for

ing from one of their worst not less than \$20bn by the year

Much of this spending was volume plummeted last year. committed before last year's Traffic this year, however, is slump in demand for all the signs picking up slowly although services and all the signs supports are set for an immediate return to the blovent rates says timescale as planted. same timescale as planned.

Major airport development programmes are underway in most constries of the developed The underlying strength of and involve an updating of pastrar transport was noted by Mr for aircraft control and Norman Payne, the chairman of handling.

Europe these include Aeroport de Paris and Sofreavia of France: the Frankfurt Airports Authority of West Germany; NACO, the Netherlands airports consultancy organisation; and the British Airports Inter-national BAI group.

BAI is a partnership of air-port specialists from the British Airports Authority, which runs seven of Britain's airports, and International Aeradio (IAL), the alrport management consultancy and equipment maker majority owned by British

Airways.

An international consortium recently won a \$1m contract to carry out a feasibility study for an international airport in Macan. Members of the conreversed in recent months and (CAAC) of Beljing; Stradbag in June aircraft movements Bau, of Cologne; Lufthansa were 9 per cent bigher than in June 1981.

The project CAAC) of Beljing; Stradbag in June aircraft movements Bau, of Cologne; Lufthansa German Airlines, Cologne; and HLT, Wiesbaden. The project HLT. Wiesbaden. Similarly, the 3.9 per cent is to be managed by Airconsult, drop in the number of pas- a subsidiary of Flughafen sengers at Heathrow iast year Frankfurt-Maln, the Frankfurt

Typical of the international onding month last year.

These returns are encouragover half-a-dozen major airport ing signs for airport planners projects, most of them in small medium-sized countries

systems.

The group starts work in September on preliminary designs for a new international AIRPORT ACTIVITY 1981

Airport	Country	Air transport movements	Terminal passengers	Cargo (tonnes)	
		000's change	000's change	000's change	
Amsterdam	Netherlands	138.1 - 3.9	9,669 + 2.9	329.7 + 3.7	
Brussels	Belgium	81.7 - 4.9	5,060 + 2.0	156.6 - 5.4	
Copenbagen	Denmark	134.3 - 7.5	8,192 - 4.5	139.6 + 0.1	
Frankfurt	West Germany .	207.0 - 0.9	16,953 + 0.5	600.0 — 0.9	
Geneva	Switzerland	68.5 - 1.4	4,171 + 5.5	32.7 - 5.5	
Glasgow	Scotland	49.3 - 3.1	2,267 - 3.1	12.4 - 3.7	
Lisbon	Portugal	38.0 - 3.8	2,940 + 5.0	46.2 - 5.7	
London (Gatwick)	England	125.1 + 1.3	10,729 +10.5	182.5 +10.4	
London (Heathrow)	England	247.1 - 9.5	26,400 - 3.9	450.4 - 3.8	
Madrid	Spain	114.4 - 7.5	9,960 - 1.8	151.0 + 4.8	
Paris (Charles de Gaulle)	France	102.0 - 0.6	16,935 + 8.4	447.3 +11.2	
Rome	Italy	134.6 6.6	10,921 + 2.0	134.5 -11.3	
Atlanta	U.S.	523.1 — 6.4	37,594 - 6.3	329.4 + 5.7	
Chicago (O'Hare)	U.S.	554.5 -11.2	37,976 -14.5	792.0 - 3.0	
Dallas (Fort Worth)	U.S.	445.8 + 2.3	23,533 + 7.2	218.4 + 10.8	
Hong Kong	Hong Kong	55.4 + 1.5	8,224 +20.4	290.3 +12.6	
New York (JFK)	U.S.	228.0 — 3.4	25,752 — 3.9	1,191.5 + 1.9	
Washington (National)	U.S.	193.5 - 4.5	14,175 - 2.5	20.1 -21.5	
Sao Paulo	Brazil :	102.9 + 2.2	5,621 + 3.7	69.2 +27.4	
Tokyo (Haneda)	Japan	224.0	21,235 + 2.0	202.3 + 4.3	

1986. BAI is also working on a field airport. Tunis, to provide capacity up

Source: British Airports Annual Report 1981-82.

The group is also involved in work for the new Baghdad airport, Iraq and is training 400 Iraqis in airport management techniques.

Elsewhere. airport feasiprojects are underway in Hong Kong, where plans are still in hand for a major new international airport, possibly at Shep Lap Kok on Lantau Island, where the total cost of replacing Kal Tok airport could be HK\$7bn, or even more depending on associated infrastructure costs.

ln Malaysia a national alr-

ports systems plan for three secondary international airports is being considered; in the Cameroons BAI is involved in aspects of the design for the proposed green-field airport at Bamenda; in Jordan the new Queen Alla International Air- (merchant bankers) and Coopers port built by John Laing and Lybrand, management conof the UK, is to open soon, sultants, among others to be

is expected to be operational in design work for a new green-

The largest profect the interpre-feasibility study for a The largest project the inter-second international airport for national consultancy groups are bidding for at the moment is the proposal for a second international airport at Bangkok. This proposal, the so-called "Cobra Swamp" project, is for a new major international gateway airport for Thailand, to be built at Nog Nua Hoa, to handle 10m passengers a year.

> Competition for a major share in this project is intense, BAI and five UK civil engineering consultants joined together to form the British Airport Con-sultancy group at the end of last year to make a single concerted British bld for contracts to carry out the main economic study and the preliminary and final design studies for the "Cobra Swamp" airport.

Sub-contractors

The new consultancy has invited the UK Civil Aviation Authority, Kleinwort Benson sub-contractors to the consult ancy for the project.

Existing airports last year were dominated, however, by the general decline in passenger and air freight activity, with airports in Europe, the U.S. and elsewhere almost all hit by the general fall in air transport movements.

In Europe the fortunes of air-Prague airport, Czechoslovakia, to the incerase of 9 per cent in aircraft movements at Tenerife's pared with June 1981. Relna Sofia airport.

ports with relatively modest a 5.8 per cent increase in pascent increase in passengers; Istanbul with a 24.8 per cent increase in passengers; Nice with a 9.8 per cent increase in engers; and Stockholm, with 8.7 per cent increase in

Downturns in traffic volume were reported by most airports serving industrial and commercial centres throughout the world, while airports serving holiday centres generally handled more people last year than in 1880.

Other centres with greaterthan-average air traffic activity included cities with oil-related business, including Houston, Texas, with 8.5 per cent more passengers last year, and Mexico City, with a 14.7 per cent in-crease in passenger volume. The general deckine in air

transport movements at U.S. airports last year, however, has to be seen against the back-ground of the strike by U.S. air traffic controllers. The strike disrupted normal patterns of airline operations and increased the volume of private and busi-

ness aircraft traffic.

The extent of the slump is clear when last year's 38m passengers at Chicago O'Bare International Airport are com-pared with the 49m passengers who used the airport in 1978, its peak year.

Nevertheless, the City of Chicago Department of Avia-tion is confident about future demand and has a master plan to boost capacity at the airport to about 90m passengers a year by the end of the century.

Despite the downturn in traffic world airports still bandle great numbers of passengers and thousands of tonnes of freight last year. Chicago O'Hare airport was the busiest in the world in terms of termi-nal passengers, with a total of national passengers, a volume rivalled only by Hartsfield Atlanta International Airport, with 37.5m passengers last year, 6.3 per cent down on 1980. Hartsfield is continuing to feel port operators ranged from the the slump in demand and in substantial fall of 26.4 per cent June, the latest month for in air transport movements at which figures are available, passenger numbers dropped by 10.2 per cent, to 3.02m com-

All this decline in demand Generally the airports with for air services has not stopped growth last year were those air almost all countries, including the U.S., from investing in new traffic flows, such as Dublin with terminals, new runways, ad-a 5.8 per cent increase in pas-vanced passenger handling factsengers: Helsinki with a 6.1 per lities and complete new airports, sometimes for prestige purposes but generally to handle future demand for air

In Britain the British Airports Authority (BAA) has forecast an average annual growth rate of between 4.5 per cent and 6 per cent for air traffic into and out of the UK. for the rest of the 1980s. A slightly lower rate of growth, between 3 per cent and 5 per £12.5m earmarked for new with 1981-82.



new Hartsfield Atlanta International Airport. claimed to be the largest passenger terminal complex in the world and second only to O'Hare in Chicago in total number of passengers handled each year

cent a year, is forecast by the roads and car parks. authority for the 1990s.

To help meet this expected increase in demand for airport capacity, the BAA plans to spend £850m (March 1982 prices) on its seven airports by the 1986-87 financial year. This expenditure is on top of the £237.8m spent by the authority in the last financial year (1981-82) to raise capacity and to hoost operational efficiency

at its airports.
The BAA plans to spend the greatest part of this future ex-penditure on its proposed de-velopment of the third London airport at Stansted. This will invoive £200m for a new terminal building and other facilities to raise the capacity of Stansted from its present 1m passengers a year to 15m passengers a year under the first phase of development. This would be based on the existing single runway at Stansted.

The BAA would like to add a second runway eventually to boost the capacity of Stansted to 50m passengers a year.

New Terminal Four

The second largest invest-ment project earmarked by the BAA under its current corporate plan involves spending £173.9m on the new Terminal 4 at Heathrow Airport, London. Work on this project to boost capacity at Heathrow from 30m to 38m passengers a year by the mid-1980s has already

The authority also plans developments at the existing three terminals at Heathrow. involving over £40m of further investment. Motor traffic flow in and around the airport is also to be improved, with

The authority wants extra capacity at Gatwick Airport and £151.5m has been allocated in the corporate plan for the first phase of the proposed new Terminal 2 at Gatwick, The Terminal has been recommended for approval after a public inquiry but the go-ahead from the Gavernment is still

The BAA also plans to spend several millions of pounds at its four airports in Scotland— Edinburgh, Glasgow, Aberdeen and Prestwick. The authority acknowledges that it wili have to borrow to complete this £850m Investment programme but it still hopes to self-finance at least 60 per cent of the total programme.

At the same time, the Authority has set up a working group with the Treasury and the Trade Department to study ways of providing private capital for the investment pro-gramme over the next five years. Tthe issue of a "general performance bond" iinked to the authority's profits is one idea. The other main proposal to be considered is the possible provision of equity finance through a subsidiary company. This would then participate in the authorities concessionary income -- duty-free goods, rents and franchises - on a royalty basis. The authority would like to raise between \$50m and £100m from external sources.

Elsewhere in Britain the 23 main local authority airports expect to spend a total of £50,5m in 1982-83 on airport developments. More than 12,5m passengers are expected to use these provincial airports, a rise of over 4 per cent compared



Aerospace developments around the world: here and on the following six pages, FT correspondents examine advances being made by individual nations.

June

econi

Fighting hard to keep pace with the West

DEVELOPMENT of a modern and diversified civilian and military aerospace industry has long been a top Soviet priority and proof to itself and others of the scientific and technological progress made by the Soviet Union since the 1917 revolution.

It is becoming increasingly clear, however, that the Soviet aerospace industry is finding it increasingly bard to keep up with the pace of technological change and development generated by engine and airframe companies in the West which, in turn, are being forced to pool resources and rationalise their produc-tion in order to find the huge sums required to develop new fuel-efficient engines and air

Traditionally, Soviet clvilian alreraft tend to lag a

profit in

Despatch Delays and Turnbacks.

There is no

unnecessary turnbacks.

Revenue loss, profit loss, passenger inconvenience, threat to the

Graviner systems make a positive contribution to aircraft operation and provide extra benefits with lowest cost of ownership.

overheat detectron system, it checks all system parts, detects fires

and monitors nacelle temperature, it is mainlained only 'on condition' without the costly need for penodic ground checks, it meets all

systems - most of the world's best airlines do. Air Forces use Graviner too.

Specify Greviner - first for aviation fire detection and suppression

Graviner FIREWIRE is the world's most reliable engine fire and

elrline's operational credibility - all ere consequences of unscheduled

generation behind their western counterparts, the latest example of this being the belated introduction of the llyushin IL-86, the Soviet Union's first wide-hodied "Airbus" on domestic and international rontes over the past 12 months.

Now that the 350-seat, fonrjet aireraft is in service to Western capitals, such as Parls and Madrid, the Soviets have finally agreed to allow Western wide-hodled aircraft to fly through Soviet airports. The first Jumbo jet of Air

Japan inaugurated a new wide-body service from Tokyo across Siheria via Moscow to Western Europe in April and Air France now also flies Airhuses to the Soviet capital. In return, regular Aeroflot IL-86 flights link Paris to both

Although the Airbus is now operational, realisation of its full potential awaits future modifications-including more powerful and more fuel-efficient engines than the the 28,000 lb thrust motors powering the current models.

On most flights Aeroflot aircraft fly with the maximum permitted passenger loads. Tickets are still relatively cheap for Soviet passengers and vast distances make air transport the pre-ferred means of transport for millions of Soviet citizens.

Over 530m passengers will be carried by Aeroflot over the corrent five-year plan period at seat capacity ratios

SOVIET UNION

which would make fortunes for Western airlines forced by competition to slasb fares and still fly at around 60 per cent capacity.

Despite high capacity utilis-ation, bowever, the high fuel consumption of most Soviet aero-engines has stimulated development of more fuelefficient variants and these have been introduced on modified versions of the Tupoley TU-154 intermediate-range tri-jels and TU-134 twin-engined jets. A newfuel-efficient cugine, code-numbered the Lotarev D-36, bas also heen developed to power the new 120-seat Yakovlev Yak-42 tri-jet and the new high-wing STOL aircraft, the Antonov AN-72.

Fuel consumption of the D-36 engine is claimed at 34 grammes of fuel per passenger/kilometre.

But the most pressing need of the Soviet civilian aircarft industry is for the introduction of high-efficiency by-pass engines similar to those produced by Rolls-Royce and the major U.S. and European engine consortia.

This need is highlighted not only hy problems with the Soviet Airbus but also by the worrying frequency of crashes suffered by the II-62 long-distance airliner with its fonr beavy and thirsty rearmounted engines.

Although beavier and less efficient than comparable aircraft, Soviet models do bave a ruggedness

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which is needed for the harsh weather conditions and frequently non-tarmac runways of many Soviet provincial airports, especially on internal feeder rontes.

But export sales so far bave been relatively modest and concentrated on other Comecon airlines, iocluding Cuba and Vietnam. Export sales in 1980 were around 600m ronbles (\$750m).

But considerable interest has been generated in the 40-ton capacily, high wing, four jet IL-76 civilian and military transport alreraft, of which several have been sold to Iraq, Lihya and other countries.

The new Yak-42 Intermediate range aircraft with rough airstrip take-off capacity and high climb rate also has considerable export potential, as did its predecessor, the smaller Yak-40.

Avia-Export, the Soviet aircraft sales and service organisation, also has high bopes for its AN-72 STOL aircraft, which attracted much attention at the Paris Air

Soviet helicopters also bave a high reputation, reflecting the resources which have heen channelled into an area with major military and civilian applications-specially in transporting heavy or hulky equipment to mining camps and pipeline installations often sited in trackless wastes or permafrost areas of the east and far north.

Development of hovercraft, dirigibles and other 'lighter than air" craft is also proceeding apacc.

Meanwhile, in space the Soviet Union continues to send up large numbers of military and civilian satellites for a wide range of purposes and continues with its Soyuz manned orbital space platform programme,

A Frenchman-Jean-Louis Chretien—and two Soviet Cosmonants successfully rendezvoused in space with the Soyuz-7 Station in July, the first East-West space venlore since the Apollo-Soyuz link-up hetweo U.S. and Soviet spacecraft in 1975.

The Soyuz programme continues, as does military development of killer satellites, orbiting laser guns and other "Sci-fi " borrors.

Anthony Robinson



Boeing 767 ict airliners seen in production at the company's Everett, Seattle, factory where 747 Jumbo lets are also huilt. The 767 is one of several new types of let airliner under development and in production by Boeing, the others being the 757 twinengined aircraft; the new Series 300 version of the 737; and the "extended upper deck" version of the 747 Jumbo itself

Surprises on all fronts

THE PAST twelve months have brought a series of significant and sometimes bewildering developments for the U.S. alreraft industry. No doubt the lights are burning late at night in the offices of the major manufacturers, as they piece to-gether the likely prospects for future

On the civil side, the final collapse of Braniff and, to a lesser degree, of Laker Airways, may have added some more unusable capacity to that ghostly air fleet slitting in the Californian desert, and elsewhere, but they have also checked some extent the industry practice of

virtually suicidal price cutting.
On the military side, the Reagan
Administration's defence poticles, and the success of the testing period of the Space Shuttle, all augur well for the future of the Aerospace industry. Financy, the Argentine condict has added a joker to the pack, by stimulating widespread depate inside the U.S. pereuce industry over its implications for a whole range of mittlery and naval hardware

and strategy. major U.S. arrlines indicated that progress is being made towards a return to health. Pan American World Airways, which has been a cause of some nervous ness ever since it was caught out by the first upsurge in oil prices in the post 1973 period, has cut its losses in hatt in the second quarter, and confirmed that it expects to be in profit in the current

three-month period. Similar trends are indicated by the other major carriers, and this will be good news for the major manufacturers whose order books for civil aircraft are not all that healthy at present.

But there is one warning note for the aerospace manufacturers from the analysts of the industry. Goldman Sachs, the Wall Street investment house, is among those who warn that the route back to beaith for the prudent airline manager will be via further control and cutting of costs. It will almost certainly not be via seeking further funds for

new aircraft to fly new routes. The demise of Braniff and Laker stand as an awful warning to industry managers of the dangers of over-investing in capacity in the hope of capturing

the traffic to pay for it, The recovery in the airlane business is still very fragile. Much depends on the general recovery in the general economic cycle in the U.S.—given that airline customers are mostly business travellers. Should the U.S. recession be slower than expected in turning round—and recovery has been postponed several times, then some major airline names could be back in trouble quite quickly.

Also unsettling the future for the

industry, and therefore for the aircraft builders, is the outlook for world oil prices. The fall in prices in the early part of the year was a major factor in improving airline costings, and any reversal of the trend would have the same

effect on the opposite side of the scale. But on the labour front, the airlines appear to have more factors in their favour. The failure of the air con-trollers strike is likely to have repercus-sions well beyond the specific wage claim

Most alrlines are seeking widespread. changes in manning levels as well as pay structures. Once again, Branis's collapse played an important role as well—by leaving many highly qualified alrline staff looking for work outside the industry—fast food franchising seems to be a favourite,

The analysts of the industry tend to be in two minds. On the income side, passenger revenues now look more secure than a year ago, and on the cost side, both oil and wages seem to be going in the right direction-for the air-

But competition is still fierce, especially around Dallas, where the Braniff traffic is up for grabs, and any serious

UNITED STATES

downturn in business could bring more grief. Whatever happens, the airlines are not likely to borrow money to buy aircraft if they can possibly manage without them.

Unfortunately, order books for new commercial aircraft are already looking thin. Pan Americao, for instance, has nothing scheduled for delivery next year, and neither has Continental, which is now effectively merged with Texas.Air. Both Eastern Airlines and Delta have orders in the pipelines for Bocing 727s and 757s, but the rest of the picture is rather bleak. In 1984 and beyond, the

order books appear stronger. But turning to the opportunities for military sales, the outlook is much more favourable. The success of the Space Shuttle testing in May was of dual significance to the aerospace industry.

The likely benefits of the \$6bn budget of the National Aeronautics and Space Administration for space-related activitios have been well niscounted inside the aerospace industry. But the latest good news is that the Defence Department's budget for similar activities now exceeds NASA's at \$8bn, and is still climbing. Future space missions will he well hacked by defence spending and this will

A major growth area for mulitary aerospace lies in the field of aircraft electronics surveillance where the Middle Eastern and South American countries are keen buyers. The Sikorsky Helicopter, made by United Techno-logies, and the aircraft surveillance systems sold in Europe by the smaller U.S. defence companies are proving in-ercasingly attractive to countries not necessarily in the big financial league.

those companies already well into the

more directly military defence budgets, It will also bring growth to the Space

Shuttle consortia which include such names as Aetna Life and IBM.

Some of the military spin off has

aiready shown itself in the shape of \$24m and \$47m modifications to Cape Cana-veral and Mission Control at Houston

respectively, for the increased security

The outcome of the Senate's vote last June on the National Budget is expected

to be a rise of 31 per cent in military

procurement spending in the current

year. The budget authority figure for defence may reach \$218bn this year, and rise to \$252bn in 1983.

military contractor since it discontinued

the L-1011 commercial aircraft, is well

placed in defence by virtue of its mono-poly of construction of the intercontin-

ental ballistic missile in its sea-launched

It is also strongly placed in overseas

military sales, which are a likely area for further expansion. With these pro-

grammes still active. Lockheed is un-

likely to suffer from the Senate's opposi-tion to the C-5 project.

Lockheed, which has become a purely

required by the Defence Department.

This trend has been strengthened by the Argentine conflict which showed only too clearly the effects of such relatively cheap equipment as radar surveillance and heat seeking missiles on large targets such as warships.

Defence spending should ensure a firm future for the aerospace industry this year and for some years ahead. The hencets may not be spread equally throughout the industry, hut sew of the major companies will be without a share of the take. The smaller electronics defence manufacturers, like Loral of New York, or Wyman-Gordon or Hexcel, all with major shares in specialised markets. may outshine some of the oetter-known

names.

If orders from the commrecial airlines also take off in the mid-eighties, and there certainly is an "if" in the case just now, then there could be some spectacular gains by such companies as McDonnell Douglas with a foot in both

camps.

Terry Byland

Sector still fairly buoyant

clearly increase the flow of dollars to

FRANCE

AIRBUS, Mirage, Exocet. These three magic words alone are enough to conjure up the recent success story of France's aero space business. For all the problems hitting airlines these days, the mood among French manufacturers is still fairly buoyant.

With a growth rate of some 10 per ceot in real terms to show for last year, aerospace is one of the rare industrial sectors in France to have continued being a source of increased employment. Foreign orders rose by 30 per cent in 1981. and exports-mostly militarymake up more than balf of total

Aerospatiale, the biggest from Renault as the profitmaking showpiece of the French

nationalised sector. While the ill-fated advanture of Concorde comes to its close, new status symbols have arrived to replace it: the first French

month, the first commercial rival to the Space Shuttle.

come to be oversbadowed by some hig questions. First Matra, the missile specialis!, among these is the impact of as well as the Thomson-CSF the depression in civil aviation, coming at a time when the French authorities would like to see the military side of the sector playing a less preponderant part.

In the co-operative grammes which have been given both to Airbus and Ariane, there is the question of the next generations, still to be

There is the question, too, of whether the momentum of European collaboration can be regained; Gen Jacques Mitterrand, Aérospatiale's chairman manufacturer, has taken over and head of the industry association Gifas, has expressed concern about the lack of new programmes.

Finally-another issue raised

The State's role in the But this sunny picture has share in Dassault-Breguet being increased to a majority and communications group, being brought under state control.

More recently, Aérospatiale has been given the senior role in a regrouping of equipment suppliers. The private-sector Crouzet and the public-sector Sicna were concerned in two previous link-up plans in the last 10 years, but neither of them came off.

Under the new plan, backed by the Ministry of Defence, Aerospatiale emerges with the domain-and almost 30 per cent of Crouzet.

Aérospatiale's sales of FFr 16.5bn (\$2.4bn) last year accounted for 38 per cent of the whole industry's turn-over.

launching of the largely French- industry has been considerably. Its highly successful helicopter backed rocket Ariane, Europe's reinforced since the Socialists division, for one, is especially took power last year, with its vulnerable, since it exports 50 share in Dassault-Breguet being per cent of its production and relies heavily on the U.S. market.

One new civil aircraft project is already on the rails, the 42-10-49-sealer "ATR 42," a highwing turboprop being developed

with Acritalia. First deliveries are scheduled for late 1985, and half a dozen companies have already placed

provisional orders, including three from the U.S. A decision on the next Airbus,

which the French partner had hoped for by the summer, is still being awaited, however, The wide-bodied Airbuses-the A300, already in service and the new A310, which is undergoing flight 'ests have made big inroads min non-US markets and the venture appears to be well on its way towards paries

for itself. But much will hang on timing the launch of the 150 seat A320. the short-to-medium range aircraft which has be-CONTINUED ON NEXT PAGE

earlier this summer, and, next competitive.

monaut, who took part in the question of whether French increase is expected this year, the three-man Soyuz T6 mission manufacturers can remain and the company is confident

controlling shareholding in Sfena—keeping it in the public

by Gen Mitterrand, as a With its order book now challenge to his elder brother amounting to almost three times in the Elysée Palace—there is that sales figure, a further big of staying in profit.

impact of recession

high level. the world-wide business recession has damped down demand for civil pro- Nevertheless, the industry 1984, if demand warrants, ducts, military aircraft activity has recognised the need for The BAe 148, British Ae West Germany and Italy, the production rate of the Tornado multi-role combat aircraft has been beld down, it is still intended to build the full 809 aircraft, and the programme will now take longer to fulfill

than previously planned.
In other directions, work on the additional Sea Harriers to replace those lost in the Falkreplace mose lost in the Faik-lands war, and work on the 60 AV-8B Harrier (GR Mark 5s) for the RAF and on the UK's share of the 336 AV-8B aircraft planted for the U.S. Marine Corps, is now beginning to make itself felt.

At the same time much activity ou both existing and new civil programmes is under way, with production of the BAe 146 regional jet airliner now increasing, wing produc-tion for the A-300 and A-310 Airbuses being expanded, and the prospect of work on the new A-320 150-seater version of the Airbus also looming.

The industry's vigour is reflected in the accounts of British Aerospace for 1981. This now partially denationalised aircraft, missiles and space group is the second biggest aerospace manufacturer in the Western World after the U.S., employing over 79,000 workers.

Last year, BAe'a sales amounted to £1.66bn, against £1.42bn for the previous year, with exports accounting for over £1bn. The trading profit was £95m, and orders on hand at the end of the year amounted

to close on £4bn.
During 1981, the UK industry as a whole achieved another new annual export record, with overseas sales estimated at about £2.6bn, compared with £1.78on in 1980.

grammes begnn some years ago and still generating substantial

remains comparatively strong, some new programmes in both While as a result of defence the civil and military spheres, budget problems in the UK, with which to keep factories busy when present work programmes mature and start to

run down.

Although there is a heavy backlog of several years' work in the industry, on both military (Tornado, Harrier and Hawk) and civil (Airbus) account, with production of Airbus wings increasing to meet current contractual commitments, the need for new programmes remains strong. Aircraft and engines take a long time to come to fruition from initial conception to operational aervice some-times as much as seven to 10

BRITAIN

years-and in order to keep factories fully employed through the 1990s, the industry must atart planning now.

ment, with the possibility of at the factories will be kept busy least three more under confor many years to come. sideration. Those already With an eye to the longer-moving through the factories term volume of civil business, include the 80-109 seat British British Aerospace is contem-"feeder" or "commuter" air748 twin-engined turbo-prop
liner; the Sbort Brothers Type
Sbort-haul airliner, 360 36 seat twin-engined feeder and commuter airliner, and the Westland W-30 civil helicopter.

All of these aircraft are now BAe is considering plans for a

deliveries to customers are now

tion is currently runoing at two emerge in the not too distant aircraft a month, with plans to future.
raise this to four a month by At the same time, BAe is raise this to four a month by

space's biggest indigenous next major international air-commercial aircraft investment liner development, the A-320 programme, costing up to 150-seater planned by Airbus programme, costing up to 150-seater planned by Airbus £350m, is also likely to win its Industrie, the European airthis year, clearing the way for the last stand at 10 aircraft firm, wings for the A-300 and A-310 with another 12 on option, while production is building up

to three aircraft a month. Westland W-30 The Britain's answer to U.S. civil helicopters, in what is expected to be a burgeoning market through the 1980s and beyond. The aircraft is already in service with British Airways in North Sea oil and gas industry support operations, and West-land is hoping for substantial orders in the years ahead.

So far, the recession has damped down demand for these and other civil aircraft, British and foreign, but the UK industry hopes, as do other world serospace industries, that when the recession ends, there is likely to be a flood of demand This is being done. Four new for these modern, more fuel-civil aircraft types are now in efficient and advanced an advanced state of developtechnology aircraft, and that

Aerospace 146 four-engined plating further improvements regional jet airliner; the to two other of its current smaller, twin turbo-prop range of civil aircraft—the BAe engined BAe Jetstream 31 125 executive jet, and the BAe "feeder" or "commuter" air- 748 twin-engined turbo-prop

flying.

The Jetstream 31 won its UK called the Advanced Turbo-Certificate of Airworthiness Prop, or ATP, with new enduring the summer, and gines from Pratt & Whitney to replace existing Rolls-Royce

ACTIVITY in Britain's zero- the sale of spares for aircraft, 27 aircraft for nine operators with market developments, and space industry remains at a engines and equipment pro- in seven countries, and produc- a Series 800 version could

1984, if demand warrants. studying the various options
The BAe 148, British Aero- available in participating in the Air Certificate by the end of liner manufacturing consor Airbuses, but elso having an overall design consultancy role.

The proposed A-320 is likely to be the most significant new airliner programme in Western Europe for the rest of this century, and for that reason alone it is considered by many to be imperative for BAe to win some share of it. The preciae share, in terms of financial investment and the amount and type work to be undertaken by BAe, is still under discussion between that organisation and the rest of the Airbus team, with the UK Government, which will have to put up much of the launching investment, also closely involved:

The discussions, involving French, West German, Spanish and Dutch companies (and their governments) are complex, but it seems likely that they will be resolved around the end of this year. In the meantime, despite a lack of enthusiasm on the part of the airlines for any new ventures in the current economic climate, design work on the A-320 is being pushed

Airbus Industrie realises that it cannot afford to allow the momentum it has built upon this programme to drop, especially with U.S. rivals such as Boeing and McDonnell Donglas waiting with programmes of their own to launch as soon as they judge the market climate

to be right.
The UK is also especially prominent in the small "com-muter" or "feeder" aircraft market. Apart from the BAe Jetstream 31, the UK has won a substantial niche in this market with the Short Brothers 330 twin-engined airliner, of which 111 have been sold to 34 airlines in 14 countries (of which over 35 bave been delivered, including over 50 to the U.S.).
Since entering service in

1976, the 30-seat 330 has car ried nearly 8m passengers, and flown over 325,000 hours. New versions of the aircraft on offer include the "Statesman" for business and executive travel, and a military utility trans port model.

The bigger, 36-seat 360 is intended to be complementary to the 330, and it seems likely that it will also generate substantial ales in the years ahead.

Also busy in the small, light transport alreraft market is Pilatus Britten-Norman, of the Isle of Wight, builder of the Islander twin-engined and Trislander three-engined aircraft which have enjoyed substantial success over recent years, with the company (now owned by Pilatus of Switzerland), baving now sold well over 1,000 aircraft worldwide.

Michael Donne



Military programme cushions Gerospatiale Military programme cushions

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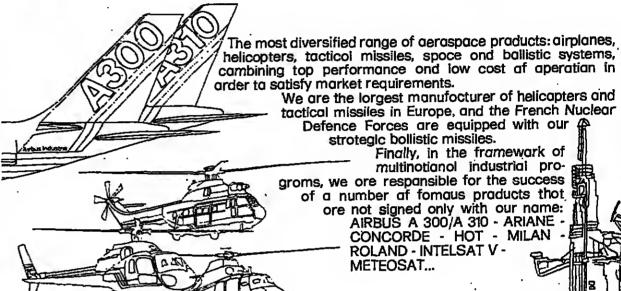
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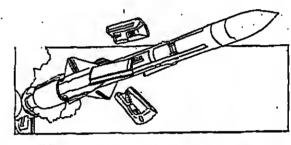
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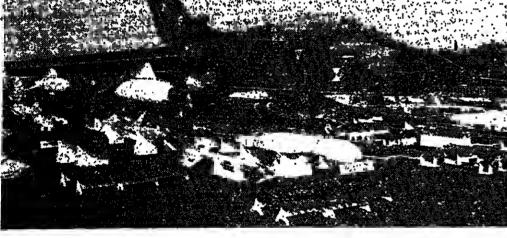


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The Anglo-West German-Italian Tornado multi-role combat aircraft (above) is now in full production for the three countries, with an ultimate total of 809 aircraft envisaged

Greater emphasis on self-reliance

LIKE ITS counterparts in Western Europe, the West German aerospace industry is passing through a difficult period, with budgetary constraints affecting the level of government support, obliging the industry to place more reliance on its own resources, specially for the funding of

Herr Martin Gruner, the state secretary responsible for the co-ordination of government aerospace policy, has made it clear that gaps caused by defence spending cuts are

new ventures.

not likely to be filled by government cash. As a result, the industry is turning its mind to ventures that it can support substantially by Itself, although some government financial support will still be necessary.

The problems facing the industry are highlighted by the fact that Messerschmitt-Bolkow-Blohm, which last year absorbed Vereinigte Flugtechnische Werke, is expected to shed about 4,500 workers by 1986, out of its expanded total after the

merger of about 40,000, which at a time of peak post-war unemployment in Germany will be neither palatable nor

Among the ventures which the industry would like to emhark noon is the next version of the European Airbns, the A-320 150-seater, in which the industry is looking for a share of about 20 per cent. As with other partners, bowever, the eventual division of work and cost-sharing will depend partly upon how many participants are involved and

WEST GERMANY

partly on how much cash the Government will be prepared to inject into the venture. According to Mr Bernard Lathiere, president of Air-bus Industrie, the A-320 is

already "over - subscribed." with enough potential participants to build at least 130 per nent of the aircraft, and it is likely that the West German industry will not get all that it would like to have. The Government's view is that while it favours continued support for the Airbus, the industry must earn that support by becoming more costeffective in its activities. Moreover, the Government is anxious to see firm launch customers for the A-320 as a condition of sanctioning any additional support—a view that is close to that held by

the UK Government. Another new venture still under consideration is the next generation European Tactical Combat Aircraft. It is now clear that, at a time when Tornado production line In West Germany has been alowed from 60 to 42 aircraft a year because of budgetary problems, the Government has few, if any, funds to spare

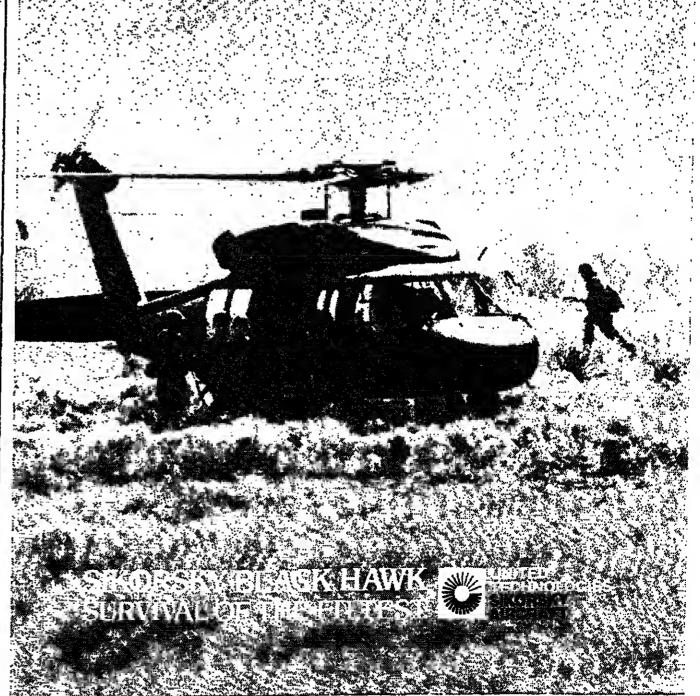
indigenous German combat aircraft, based on the original bnt now dormant TKF-90 con-

This has resulted in a renewed effort to achieve international collaboration, and this summer there have been discussions on an industry level with the UK and Italy, to try to find ways of proceeding on a joint basis with at least the initial development of a European Combat Aircraft, based on the UK's P-110 design, if necessary with industry eash. Whether this comes to fruition remains to be seen.

Another major military programme banging fire is the PAH-2 anti-tank helicopter, a Franco-German (MBB-Aero-spatiale) venture which it is nlanned should enter service in the late 1980s. But a procurement decision is still awaited from the German Army, (which wants over 200 alreraft), and in the meantime, there is considerable competition from U.S. helicopter mannfacturers, especially Bell, which is offering its Model 249.

Other ideas for the longerterm development of a new transport helicopter, the TH-3, have been proposed, suggestions that this might form the nocleus of an erentual European-wide helicopter consortium between the West Germans, French, British and Italian manufacturers. This appears to have been pre-empted to some extent by the UK and Italian decision to go ahead with the EH-101 Sea King replacement, with the parallel development of a commercial variant, so that unless West Germany were to join that consortium (the French show little Inclination to do so), the likelihood of any pan-European helicopter mannfacturing group seems remote.

M. D.



Airbus, to meet fleet renewal needs and to compete with Boeing in this potentially huge market.

The in-service date of 1986 which the company originally had in mind now has to be reconsidered. But progress has engine. been made on putting together a new consortium, with a memorandum of understanding which would bring in De Havil-

European Airbus partner.
For Dassault-Breguet, which
had a less impressive profit record last year despite a 16 per cent increase in sales to FFr 12.5bn, a lot depends on the success of the new Mirage 2000, the latest in the line.

The company's Falcon business jets helped to take un the slack last year when military sales were slow, but this year grame. the civil side of the business is expected to do less well.

The 2000, a multi-role deltadisappointment in Aus- shoulders. tralia was repeated this month whép Belgium expressed its pre-

FTANCE CONTINUED FROM PREVIOUS PAGE ference for the U.S. F-16-much to the annoyance of French officials.

The manufacturer is to put more muscle into the aircraft by fitting it with a more powerful version of the Snecma M53

The state-sector Snecma, which had consolidated 1981 sales of FFr 6.4bn, still relies on military orders for more land of Canada as the first non- than three-quarters of its engine sales, even though its civil orders—boosted through its joint venture with General Electric of the U.S., CFM Inter-national—practically doubled last year.

Overall, the industry's exports are almost two-thirds military. and it relies heavily on France's own defence spending pro-

After the Socialists came to ower there was talk of correcting the balence and keeping the wing fighter due to be pro- military side at 50 per cent, duced in single-seater and two- through new passenger aircraft seater versions, is to be ready projects and development of for delivery from next year, space activities. But, asked Two important export deals whether such an aim was ever have already been clinched, serious, Government industrial Egypt and India, but an strategista now shrug their

David White for the development of an

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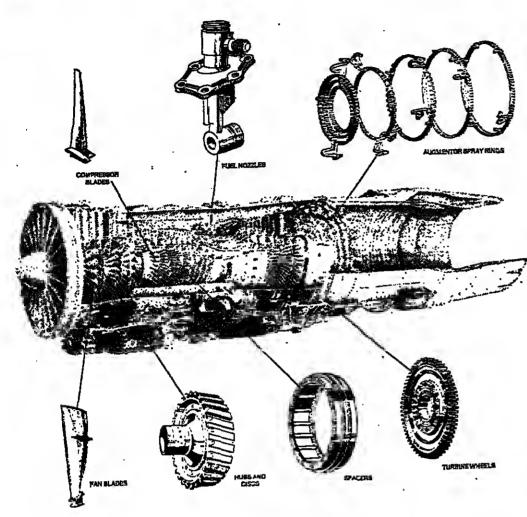
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Hobbled by financial restraints

this year. Less than 12 months ago, Fokker had seemed on the verge of re-emerging as a leading power in world aviation. Toprofitably and comfortably, its ambitions have been curbed and the talk is of consolidation rather than the great leap for-

ward. What caused the change was, of course, the abrupt dissolu-tion of Fokker's links with Mc-Doonell Douglas of the U.S., which was to have resulted in joint production of the MDF-100, a new 150-seat, short-to-medium-haul airliner. The break-up htrt. Now, while cast-

ing around for new partners, the company—which likes to the company—which likes to project itself as "aircraft maker to the world"—is seeking. basically, to improve its existing product range. A respectable year's profit is expected, to add to last year's figure of Fl 10.8m, but thoughts of an early because have vanished. In 1982. bonanza have vanished. In 1982. sales of the highly successful F-27 and F-28 airliners are still what count. logether with valuable snares and assembly of American - designed F-16 American - designed fighters.

Elsewhere, Hollandsche Signaalapparaten of Hengelo, contiones to engage in the European space-race through its involvement in the Eros satel-lile programme, and a growing number of small engineering companies have joined the Netherlands Aerospace Group. a consortium which competes actively for business in the subcontracting market.

Fokker, though, remains the Clear number one in its field. by politing out of the McDon-Without this once-great manufacturer. Holland would be an aviation also-ran in the same from the consequences of its league as Denmark or Belgium: with it. The country can claim tradition and achievement and an industry still employing more than 12,000 workers.

ness but the economic recession forced cancellation of the pro-

FINANCIAL constraints have brought the Butch aerospace in-chairman, said at the time that the continuing success story of

once, horizons were inwered. For Fokker, it was a humiliday, while it is ticking over ation as well as a commercial setback. Since then, however, the company has bounced back and has recovered its nerve. The easy option would have been to look for an immediate alternative in the MDF-100. Fokker.

NETHERLANDS

though, has been cautious and has studied the sometimes competing claims of Boeing and Airbus Industrie through the eyes of experience. Management is determined not to he rushed. Top executives and design teams are examining the possibilities and saying nothing, and in the meantime they are pressing abead with a development programme on the F-27 and F-28 for which many manufacturers round the world would be deeply grateful. But while Fokker takes stock,

It appears increasingly likely that it will finally come down in favour of joining the Airbus A-320 consortium. For one thing, it is European, and the Dutch are 100 per cent Euro-peans. For another, they would be working with companies more or less Fokker's own size and could hope, with luck and perseverance, to emerge from talks now going on with a level participation in the new medium-baul Airbus of as much as 15 or 20 per cenl.

It has even been said that, own folly. Development costs of the MDF-100 would undoubtedly have soared far higher than the aircraft itself, and Fokker could vear that February of this cent of a mounting catastrophe. With Airbus, the potential may its dream of a "world" airbus smaller—shares in the smaller in the smalle MDF-100 had been seen as a scribed—but the safety margin slepping stone back to great- and the scale of operations are each pitched more at Fokker's

In the meantime, Mr Swart-

Missing flypast tells story

RELCTION'S national day on gramme is at present firmly in July 21 neatly summed up the the hands of the Belalrous dectining fortunes of aviation in the country. For the first the State-controlled Sonaca. time in many years the pomp of military march-pasts in cen-tral Brussels was not crowned in Wallonia, where the alreraft hy a fly-past nverhead.

By some estimates Belgium's air force pilots are currently flying only 36 training hours a year as against the Nato level pledged of 240 hours. Although that perilously poor perfor-mance is a result of public spending cuts, it also reflects all too accurately the state of the aircraft industry.
Ironically, it has been Bel-

zium's part in the construction of these virtually grounded military aircraft that bas kept its handful of aircraft specialists in business since the World War II. The mounting cost of aviation fuel and the stringent budgetary disciplines being imposed by the Belgian Government to reduce the runaway state deficit are certainly reducing the operational effec-tiveness of the air force, yet it is Belgiom's participation in the F-16 combat aircraft fighter that guarantees the survival for the present of the country's three leading aviation concerns.

The two major airframe constructors, SABCA and Sonaca. rely for more than balf their turnover on sub-contracta resulting from Belgipm's share in the

BELGIUM

huilding of the U.S. General Dynamics fighter selected in 1975 by a number of European countries in what was known as "the sale of the century" as the new generation Nato fighter. In Belgium the F-16 replaces the ageing Lockheed F-104G Star-Aghter and the aircraft engines division of Fabrique Nationale Hersial depends to the tune of part in the building of the aircraft's FR-100 Pratt and Whit- heing worked out by the ney engines.

The fact that these three main aviation companies, with their 7,000 or so key technical jobs, are grouped in the Frenchspeaking southern Wallonia region of Belgium has of late roused fierce resentment in Dutch-speaking Flanders. Some 90 small and medium-sized Flemish engineering concerns have rallied behind such larger groups at Bekaert to form the controversial "Flag" consortium that is demanding a major stake in future aviation contracts. Flaz-for Flemish Aerospace

Group-is attempting to break Wallonia's longstanding dominance of the aircraft sector by nnly on the F-Ifi but also nn the costs for A-310 Airbus, even though Bel-could total stum's belated involvement in the Airbus Industrie pro-

grouping that is dominated by

Flag's demands have proindustry, small as it is, is seen as one of the few high technology rays of hope in an economically battered reginn that is otherwise grappling with the decline of steel and heavy engineering. Flag's disruptive effects, for it uodoubtedly has political clout out of propor-tion to its technical expertise and experience, are likely to he compounded by the present state of the Belgian industry.

Since World War II the sector has slid from heing an industry in its own right, with a strong innovative lead in light and training aircraft, to the status of client industry with little other function than to produce the domestic content of foreign aircraft bought by Belgium's air force or the State-owned airline Sabena. At the same time majnr foreign interests have hought in, so that the leading SABCA company, founded along with Sabena in 1923 as a cornerstone of Belgian aviation, is now 50 er cent owned by France's Dassault-Breguet.

That particular relationship bas of late greatly complicated the reaching of a decision inside the Belgian Government on a successor 10 the air force's French-built Mirage V tactical strike aircraft. The choice appears to have aettled on the F-16 once again—which will ensure that the local contracts on those ordered to replace the Lockheed F104G do nnt run ont in 1984—at the expense of the new-generation Mirages that had been urged by Dassault-Brequet along with the Dassaull-Dornier Franco-German Aloha-Jet already in limited use in Belgium for advanced training.

The details of the F-16 second wave orders are still Belgian Government, with the object of securing both attractive financial terms for what could he up to 100 fighter air-craft and a substantial share of their coostruction. A sizeable proportion of that work seems deslined to be placed with the burgeoning Flemish aerospace industry, thus raising fresh doubts as to the longer term future of the Walloon sector. For even with its present lion's share of F-16 contracts and works on the Airbus, Wallonia is finding itself forced to give heavy aubsidies to the aircraft companies there. The compararecently established regional government has lately, after much deliberation, receive 55 per cent of all the decided to subscribe some work carried out in Belgium not BFr Lihn of Sonaca's start-up

the Airbus, which I BFr 4.8bn. Giles Merritt

dustry very much down to earth even keeping the venture tick- the F-27, first developed in the Ing over was too costly. Every-early 1950s and still going thing was cancelled, and at strong in 1982. Experts say that the original F-27 and current model resemble each other in concept nnly-both being short put to go to medium-haul, turbo-prop air Industrie. liners. Progress down the years has been such that an aircraft coming off the assembly line this year is as up to date as any of its "newer" rivals and probably much more reliable. The image is good, and even if sales have been forced down by the recession, work continues. Well over 500 F-27s have now been produced, and the market for spares and repairs is considerable. There is no reason why sales should not reach the 1,000-mark, providing a con-tinuing backdrop of profit against which in set plans for

> Today, Fokker employs some 9,700 workers, nearly 2,500 more than in 1978. To keep this workforce busy, there is lated one and that, if previnus trends are repeated, customers will eventually be found for all the aircraft produced. At the same time, the F-16 continues to be a money-maker. tinues to be a money-maker. The 100th was delivered in June, and three a month of the sophisticated fighter-bomber are currently being produced. Production of Fokker-designed carbon-fibre tail sections for the F-16 starts later this year. and carbon-fibre undercarriage doors for the A-310 Airbus are already being assembled.

the future.

For Fokker, the worst may profit, as it has done, hand-be over. Profits could well be somely, from the F-27. dented over the next few years by the continuing recession in

Mr Frans Swarttouw, Fokker touw ean content himself with airliner sales. There is no reason to believe, though, that lessons have not been learned, and even the experience of working ingether, briefly, with McDonnell Douglas, could be put to good use with Airbus

The other branches of Holland's serospace industry are similarly jogging along-keeping abreast with the latest techunlogical advances but scarcely making waves in the world market. Hollandsche Signaziapparaten, which joins Fokker with Philips, is funded by the Dutch Government and is involved in helping to produce the Eres infra-red astronomical satellite for lannching later this year. The new satellite should measure cosmic radiation sources 50 times better than ground-based equipment. Hollandsche Signaal is also involved in research on spiral groove bearings for the European Orbital Test Satellite (OTS) and is working on improving solar battery discharges to prevent explosions in space. undoubtedly an element of stockpiling at the moment. The company has supplied an Company spokesmen insist, however, that the risk is a calculation to prevent explosions in space. The company has supplied and through its French division of the company has supplied and through its French division. sion, is developing parabolic antennae systems for the reception of satellite television pic-

> Funding comes from the Netherlands Agency for Aerospace, a covernment-sponsored body set up in 1946 to rescue Fokker and establish Philips in a new area. The agency pro-vides cash to help in the development phase of a new project MDF-100-and is repaid our of sales. Thus, while it inkes a risk, it also standa to make a

> > Walter Ellis

Mergers bring fresh life

iodustry are currently under-going as rapid and sweeping a process of change as aero-

Only a few years ago. It seemed primarily a clusion of small and medium sized companies, all of them fiercely independent and concentrations on proven, but small, niches in the neerall international market.

Like its counterparts elsewhere, the Italian industry has realisted that the costs of developing a new project are today

But since 1977 its turnover has tripled, to L2,200bn (\$1.6ibn) in 1981 from L740bn four years earlier. From the previous fragmentation, two hroad groupings are emeraing, both under the aegis of the public sector. Italian aeroinvolved in projects across the entire spectrum of both the civil and military sectors. Inevitably, the industry has been a key element in the process whereby Italy has emerged as the world's fifth arms manufacturer and exporter. Foreign sales, at L1.550bn. accounted for per cent of activity in 1981. But in a wider sense, innovations generaled in the sector have helped maintain the country's place in the high technology, high value-added industries on which its future

as a trading power will in good measure depend. The Government, too, has been playing its part, although still not actively enough to satisfy many people within the industry. The long overdoe modernisation of Italy's armed forces bas helped. while aerospace will be a leadine beneficiary of the (\$1.1bn) L1.500bu approved by Parliament earlier in 1982 to support

lechnological development. Even so, many analysis fear that hureaucratic sloth, that perennial characteristic of official Italy, could still hamper the sector's progress—as

ITALY

might sterile feuding hetween the two single biggest companies involved. The largest, and cornerstone of

of one of the two groupines. is Acritalia, controlled by the Finmeccanica engineering division of IRI, the Stateowned conglomerate. Under the scheme envisaged by the Ministry for State Shareholdings, Aeritalla will be responsible for medium and large aircraft and space projects.

Already, it is a key subcontractor for the Boeing 767 medium-range passenger air-craft, and heavily involved in the Tornado multi-role combat aircraft, or which the 809 aircraft on noder will be the linchpin of the modernisation of the Italian. West German and British air forces within Nato. Jointly with France's Aerospatiale. Aeritalia is also to produce the 40- to 50-seat ATR-42 "commuter" o regional transport aircraft.

But perhaps most indicative of the new philosophy underlying the industry is the collaboration between Aerilalia and Aermaechl-the largest privately owned company—in the AM-X light attack aircraft project, in which Embraer of Brazil also participates.

SECTORS in Italian To seal the venture, the state-ustry are currently under-ng as rapid and sweeping per cent equity stake in the varese-based Macchi, hitherto the exclusive property of the Finresio family, and there are suggestions that the share might soon go up to 25 per cent.

greater than any single pri-vate company can shoulder. In the meantime, deliveries are

now in full swine of Macchi's MB-339 jet trainer (easily convertible into a light attack aircraft as events in the Falklands war showed to the Royal Italian and other foreign air-forces, including Argentina's. The second hub in the industry ls Agusta, now controlled by EFIM, another publicly owned concern. Which will have re-sponsibility for both heli-copters and smaller aircraft.

On the helicopter side there are no problems: Agusta makes a wide range of machines, both under licence from Bell. Sikorsky and Boeing of the U.S. and on its own account, as well as sharing in the planned EH-101 naval belicopler project with Britain's Westland.

However, friction has deve-loped on the light aircraft side, with charges from Macchi that the later \$211 trainer built by Sivi-Marchetti. a subsidiary of Agusta, is a needless, direct competitor of the established MB-339. This Agusta and EFIM deny

bur the rivalry between them-selves and Aeritalia for supremacy in the sector is illconcealed. And wasteful duphcation is not something that Italy, where research and development spending slill lags behind that of its competitor countries, can afford. But efforts are under way to secure a truce.
Already the relentless pressure

for new capital has obliged the Agusta family to run down its stake in the company from 49 per cent to 20 per cent. after a capital increase in

It is now becoming clear that Count Corrado Agusta would like to dispose of the remaining interest, and some pressure is being exerted no Finmeccanica to slep forward as

hnyer. Joint FFIM/IRI ownership of Agusta would neatly symbolise a new, co-ordinated ap-proach by the State sector to the problems of Italian aero-space. But Finneccanics is understandably wary about paying dearly for a minority stake, which could still prevent il from exerting real control in the running of the сотрапу.

Even so, these difficulties have thus far not fatally impeded the industry's advance, ployment rose a further 3 per cent last year to 42,000, in sharp contrast to the squeeze nn jobs in most of the rest of Italian manufacturing industry. Investments in 1981 doubled from 12 months earlier to L370bn (271m). and the medium and longer term outlinek for the arrespace secor remains, disuncily beauty.

Rupert Cornwell

Boost from new military contract

SWEDEN'S aerospace industry is basking in a far more buoyant climate these days. After three years of doubts about its future and with its very survival at stake the industry bas recovered its self-confidence; new staff are being recruited and a sense of purpose has returned to the design rooms and worksbops.

The most important single

factor for this change of mood was the signing on June 30 last of the contract under which the all-Swedish industrial group led by Saab-Scania will build a new multi-role combat aircraft for the Swedish Air Force. Other bullish features are the speed at which Saab's joint airliner project with Fairchild of the U.S. is going ahead and the extension of the missile programme.

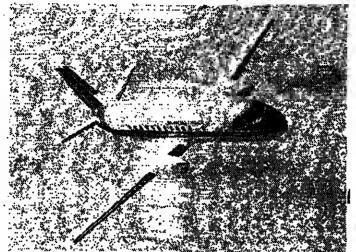
The order for the new com-

bat aircraft, code-named JAS, covers development and production of an initial batch of 30 aircraft. The contract is valued at about SKr 10bn (£940m), with about two-thirds of the work being carried out by Sazb-Scania. The rest is divided among Volvo Flyg-motor, the Ericsson Telecommunications group which will be responsible for the pulse doppler radar equipment, SRA Communications and FFV. the state-owned defence equip-

The full JAS programme approved by the Riksdag (Parliament) calls for the delivery to the Air Force of 140 aircraft with weaponry and other equip-ment by the year 2000 at a cost of SKr 25.7bn in 1981 prices. By choosing the JAS and dis-

carding competing offers from American manufacturers, the Swedish Government and Parliament are estimated to have saved 6,000 of the 13,000 jobs within the Swediab aerospace industry. In particular Saab-Scania's capacity to design its own aircraft has been preserved. The decision to go ahead with

the JAS was pushed through Parliament by the non-Socialist, parties against the opposition of the Social Democrats who are well placed to win the general election in September and return to power. The Social Democrats did not object to the order going to the Swedish group but Saab Viggen, the aircraft used by Argentina in the Falk-they wanted to postpone the de-



The Soob-Fairchild 340 commuter airliner, now in . production, is a joint venture by Saab-Scania of Sweden and Fairchild Industries of the U.S.

increases the risks carried by

one version will perform Inter-

cept attack and reconnaissance

missions. Like its predecessors,

the Viggen and the Draken, it

operate from ordinary roads and under a simple turnaround

service bandled mainly by

At a take-off weight of around

eight tonnes the JAS will be roughly balf the weight of the Viggen but will possess a

weapons-carrying capability of

On the same day that the

jointly by Saab-Scania

curement Board also placed a SKr 500m order with the Saab Bofors Missile Corporation.

and the Bofors armaments com-

pany, for an Air Force version

of the RBS 15 missile currently

under development for the Swedlsb Navy.

a sea-skimming anti-ship weapon

This brings to SKr 1.1bn the

order as .its

Saab-Scania emphasises that

the contractors.

conscripts.

predecessor.

owned

cision for another year to allow Force, the contract significantly time for further assessment of the economic and technical contents of the package offered. Democrats' the JAS will be the first true multi-role aircraft, of which

The Social Democrats' attitude bas been influenced the doubts expressed by the Army commander Geoeral Nils Skold whether the JAS design has the development potential to remain competitive through its estimated lifetime, which will extend well into the

next century.

The Air Force does not share the Army chief's reservations and the Social Democrats are not expected to cancel the JAS order if they are voted back

SWEDEN

into office in September. The contract signed in June provides for substantial penalty payments to the contracting group in the event of a cancellation.

It also includes penalties payable by the contractors if they fail to meet the specifications, which cover not only the aircraft's performance but also the cost of operating and main-taining it. Aiming at avoiding the cost overruns experienced in developing and building the similar to the French Exocet, foreign component in the missile will be the jet engine, which will be bought from France'a Micro Turbo. The RBS 15 will have a

longer range than Exocet. According to reports in the Swedish Press its target-seeking equipment will be less vulnerable to interference than that of Exocet, and will have a ground-hugging capacity, enabling it to be used within the island belts around the

Saab-Scania's target is to reduce its dependence Swedish military contracts and to reach a balance between will tary and civil work by the end of this decade. The principal component in this strategy on the civil side is the 34-seat airliner the SF340, which it is building together with Fairchild Industries of the

So far development of this aircraft is on schedule. On August 3 at Saab's Linkoping plant, the wings, built by Fairched in the U.S., were mated with the fusciage of the first aircraft, which is scheduled to roll out late in October next. The first flight will take place early in 1983 and the first deliveries are planned to reach is designed to fit the special deliveries are planned to swedish air defence profile customers in the first quarter of 1984.

Saab-Scania and Fairchild report 111 firm orders and paid options for the SF 340, which is aimed at the growing sborthaul regional airline market. They estimate that the project will break even with the sale of around 200 aircraft at a price of roughly \$4.75m each in 1981 prices but they believe they have a good chance of capturing a considerably larger share JAS contract was formally com-pleted the Swedish Defence Pro-gether amount to as much as

2,000 aircraft by the mid-1990s. One sales point underlined at Linkoping is that by virtue of its transatlantic parentage the Saab-Fairchild SF 340 will be the first airliner designed to meet both the highest U.S. civil aviation standards and the new joint European aviation regula-tions. But one of its biggest advalue of the contracts so far vantages in fighting for its mar-reached for the RBS 15. It is ket share may be the speed with which it is being brought into

William Dullforce

The complete communications technology company

THOMSON-CSF, the French-based electronics company with a turnover of \$ 4.36 billion 1981 generated by 82,500 employees, is tackling the revolution in communi-

cations technology on every front. The company, with 48% of its sales outside France, is continuing to consolidate its reputation as a global leader, in every industrial and government electronics. These include avionics, air-traffic control systems, medical operations and telecommunications. THOMSON-CSF's telecommunications activities account for 38% of the company's revenue and include transmission, switching, data processing

and key main components. Consequently, it is one of the world's few companies to possess the wide range of expertise essential to the development of major communications systems carrying voice, image, data and telex traffic over radio, microwave, conventional and optical-fiber cable and satellite links. In the area of satellite communications, in par-

ticular, THOMSON-CSF designs and builds integrated telecommunications systems and their component parts including satellite payloads, earth stations, a wide range of equipment, tubes, dataprocessing systems and control systems.

THOMSON-CSF performs project design work, including site surveys, technical, financial and administrative studies and related tasks.

The company also designs and builds tumkey systems and

trains the necessary operating personnel. Lastly, it is active in technology transfer and helps set up manufacturing facilities in foreign countries.



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Two countries become partners...

moustry companies to centre round the success of the C-212

Aviocar or "the jeep with stage on the production of an wings" as it has become upgraded version of the popularly known. This STOL Aviocar, the CN-235. This will aircraft (short take-off and land-time) the popularity of the companies. At the same with the Defence Ministry for large the popularity of the companies of the companies. At the same with the Defence Ministry for time, it has sought to develop repair and maintenance of airindustry continues to centre Hercines. ing) has become the standard-bearer of its producer, Construc-more powerful engine, the bearer of its producer. Construc-Aeronauticas which, in turn, is the dominant the Aviocar Garrett TPE-331.

force in the industry. According to Casa a total of 330 C-212 aircraft either in civilian or military versions bave been ordered and 215 are currently operational. Sales last year alone totalled 65 with new markets in Australia and the through in all important North American markets, where 26 600 on the military side. were sold. Aviocar orders assure

There is going to be

Casa work to 1985. Casa is also bidding for a major contract with India to supply 200 Stol aircraft, offering the C-212. This would be a major advance and open Casa's borizons even further.

The Aviocar can carry up to passengers or loads of 2.8 tonnes, with a wide variety of civil and military uses. The aircraft has done specially well on the military side and Casa is now stressing recent studies which have shown that peacetime use of larger military transports is well below

The argument now advanced is that it is cheaper and more aerospace companies, it has efficient to utilise smaller airbeen remarkably successful—craft of the Aviocar type rather largely because it has carefully

aerospace than, say, the Lockheed defined its objectives, to centre Hercules. Lacking a broad technological

General Electric CT7-7 against

The potential market for such an aircraft is believed to be

1,800 civilian units over the next 10 years, with a further

There is going to be tough competition from at least three other international groups. Casa feels it has acquired client loyalty as a result of the C-212 and it has made an important move to secure a foothold in the

Asian market.
The company bas aigned a joint production deal with the Indonesian National Aircraft Company, for the CN-235. The latter is already assembling the Aviocar and some 40 Spanish engineers are now working in

Indonesia on the new project.
Casa, founded in 1923, is 69
per cent controlled by the state
bolding company, INI. Although one of the amaller European

an increasing share of Spain's defence needs in the aerospace

One of the boles left by the big companies concerns adaptation of technology. Here Casa -which also has as partners Northrop (13 per cent); MBB of West Germany, (11 per cent) and Avions Marcel Dassault of France, (0.6 per cent)-believes that it can play a role adapting advanced technology to less sophisticated needs.

Casa also plays an important role as sub-contractor on a number of alreraft programmes. For instance, it makes horizontal stabilisers and passengers doors for the Airbus A-300 (it is also a member of Airbus Industrie); it supplies parts for the Mirage -1 and for the Falcon executive jet, both produced by Dassault. The company also works with Boeing on the 727 and the 757 airliners, with McDonnell Douglas on the DC-10 and Canadair on the L215 programme, in addition to produc-ing the B0-105 helicopter with MBB.

On the national defence side, Casa haa developed and produced a jet trainer for the Spanish Air Force—the C-101. So far, four of these two-seat

bopes of securing export orders for the trainer, especially in

craft and also does some maintenance work for the United States Air Force on Phantom F-4 aircraft and their engines.

The most significant aero-space deal in years, however, bas been the recent decision by the Spanish Government to select the U.S. McDonnell-Douglas F/A-18 Hornet fighter for the Spanish Air Force. Up to 84 aircraft will be bought worth about \$3bn.

The deal — the details of which are now being discussed — will involve a substantial volume of industrial offset acti vity for the Spanish aerospace industry, including manufacture of components, the trans fer to Spanish industry of U.S. aeronautical technology, provi sion for in-service maintenance and other support for the Hornet.

The deal also includes procurement of the U.S. General Electric F-404 turbo-fan engines to power the F/A-18 aircraft A total of about 180 engines will be provided by General Electric for the new Spanish Air Force fighter between 1985 and 1988. The first Spanish F/A-18 is to be delivered in January 1986.

Robert Graham

in joint "flying jeep" development

INDONESIA'S aerospace in- mental politics and complex nature of the Spanish company dustry revolves around the administration. dustry revolves around the personality of the Minister for Research and Development, Dr Research and Development, Dr the manufacture of a light B. J. Habibie, and on the hopes Polish aircraft for agricultural ing) commuter freighter, the CN-235, which is being produced by an Indonesian-Spanish

dent of Indonesia's public aero-space company, P. T. Nurtanio, and executives of Spain's CASA, Nurtanio's partner in the CN-235 project, speak of him in terms approaching reverence. A hand-picked bright-boy sent to study abroad. Dr Habibie gained a doctorate in aeronauti-

cal engineering in West helicopters. In the fixed-wing Germany and joined MBB whre sector, Dr Habibie's choice of he rose to become vice-president. He returned to Indonesia convinced that technological advance was the key to development and national indepen-

His creation of Nurtanio, in the wake of the 1973 oil take-off. and under the umbrella of Petramina, the state oil company, was a practical expression of his development theories. CASA executives see Dr Habibie almost as a renaissance figure

After experimenting with

tion, initially with his former company MBB, for the manufacture of the light, tactical BO-105 helicopter and later sought

INDONESIA

of the robust Puma range of a Nurtanio partner was Spain's

A first Indonesian contract for eight C-212 Aviocars in 1975 was followed by four further orders of 20 aircraft each with an upgrade of Indonesian participation in each order. The current 20 units of the fourth order are 85 per cent manufac-

tured in Indonesia. nesia as much to the versatile, equally at home in the worlds sturdy qualities of the "jeep of advanced science, develop- with wings" as to the flexible 1,800 units, for the 1984-94

Both Spain and Indonesia found fertile common ground in the department of intermeplaced on a new generation use, Dr Habibie narrowed diate technology and of a STOL (short take-off and land-indonesia's aerospace industry ing) commuter freighter, the requirements down to co-operative freighter. of interest is due in October, 1983, when the CN-235 is scheduled to make its maiden flight. Essentially, the 34-38 seat. high wing, turbo prop CN-235 is the child of the Aviocar, and sbares the basic characteristics of its parent It aims to be cheap both on fuel and maintenance, and is projected to be both tough, with a landing gear designed for semi-prepared air-fields, and adaptable for both passengers and cargo. Its maximum cabin diameter is a East Asia. spacious 2.7 metres, and it incorporates a wide central door

and cargo ramp. The aircraft will be powered by two CT7-7 engines and uses Messier Hispano-Bugatti land-

The CN-235 is the result of 50-50 Indonesian-Spanish sbared basis project and \$80m has been sunk into its develop-Casa executives attribute ment and the construction of its their relationship with Indo- two prototypes. Commercial feasibility studies estimate a place in the complex. civil market for the aircraft of

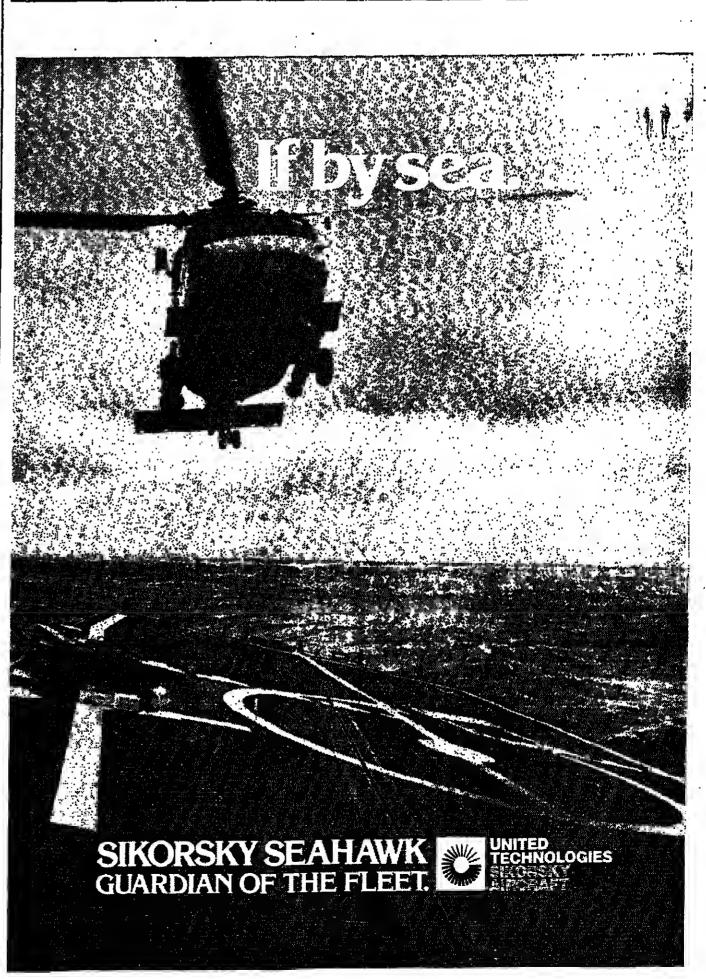
period, in addition to a further 600 adapted for military use.

Indonesia bas placed orders for 54 units and Spain for 20. The test for the new air craft inevitably depends on the American market for which the feasibility studies allocate 40-45 per cent of the estimate. The CN-235 backers believe that CASA bas already achieved something of a breakthrough in America, baving found five civil U.S. buyers for the Avio-

Production of the new aircraft aims to boost the present 6,000 employed in Indonesia's aerospace industry to a workforce of 10,000 by 1986 and to consolidate for Nurtanio an unchallenged position in South The conditions for such pre-

eminence are already well-established at Bandung where factories Nurtanio One and Nurtanio Two (earmarked for the CN-235) constitute what foreign associates claim is an ontstanding modern conception of facilities for an aerospace industry. In keeping with Dr Habibie's background and beliefs, research and development facilities occupy pride of

Tom Burns



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The Brazilian Government ...

aircraft.

owns 51 per cent of the voting shares of Embraer, but the rest is in the hands of private investors. By the end of 1981, Embraer bad built well over 2,500 aircraft of various

The most successful civil aircraft built in Brazil is the Bandeiranta (Pioneer), a twin turno propeller airliner, seating up to 21 passengers, of which more than 400 have now been sold to operators world-wide, and especially to the "commuter" alrilines in tha U.S., where the aircraft has proved highly suitable for short-haul feeder operations and for linking local com-monities both together and

with larger airports. Embraer is also building a maritime surveillance version of the aircraft, whila it is aiso in aervice with various

foreign air forces. Following the Bandetrante. Embraer is now developing the larger 30-seat twin-engined

BRAZIL

Brasilia airliner, also aimed at the commuter and feederliner market, but also highly suitable as a small transport for a wide range of other duties.

Orders and options for the Brasilia stand at over 130 air-craft, with deliveries expected to start next year. Despite the fierce competition in this market, Embraer has built a major reputation with its Bandelrante, and is beping to follow that with an even bigger success in the

Also making a successful reputation for itself in world markets is the smaller, 6 to 9passenger twin turbe-prop engined Xingu executive aircraft. An improved version, the Xingu II, is also available while the manufacturer is offering operators of earlier gramme, designed to bring their aircraft up to Xingu He standard. This aircraft will be

on show at Farnborough.

A subsidiary of Embraer,
Neiva is responsible for production of the Ipanema agri-cultural aircraft, and various Brazilian-huilt versions of Piper single-engined and twinengined light aircraft.

In the military field, Embraer has assembled under licence the Xavante, the Brazilian version of the Italian Aermacchi MB-326GB jet trainer and ground aftack aircraft for the Brazilian air force, with a number also be-

ing exported.

The company is now building its own two-seat hasic further for the Bradition dir. Larce the EMB 32 called the Theme. The first two-prices troops have passed and the large been handed over to the Aerospace Technical Centre in Sea Paulo State

in Sao Paulo State. The Brazilian air force is reported to be pleased with

the performance of the aircraft, and has placed a firm order for 168 aircraft. Production tooling is building up to provide for first deliveries at the beginning of next year.

For the longer-term future, work is now under way at Embraer, jointly with Aeritalia and Aermackii of Italy on the AMA, a subsonic single-seat, single-engined combat aircraft to replace the Flat G-91 and Lockheed Fig. 6-91 and Location
Fig. fighters in the Stallan
the force involving at least
187 sireraft. The Brazilian
force has a requirement
for an to 160 of the AMIX type
of alreaget. The first flight of
this new venture is scheduled for next year.

Michael Donne

Good opportunities for foreign manufacturers

SINCE its purchase several years ago of three Boeing 747 Special Performance Jumbo jets, China has done little further to upgrade its aged fleet passenger aircraft, many of

THE BRAZILLAN aerospace

industry is one of the most

vigorous in the Developing World. It has already made a

major cootribution to world

air transport with a range of

small and medium-sized air-

liners and military trainers, and is also expanding its in-

terests into the field of more

The principal manufacturer

is Embraer, based at Sao Jose

dos Campos in Sao Paulo State, and employing about

6,000 workers. Although it was

set op only in 1969, and came

into operation in 1970, it has quickly established a high

repotation with overseas customers for civil and military

advanced combat aircraft.

wbich are Russiao-built. According to foreign aircraft manufacturer's representatives soatiale of France.
in Pekiog, the Chinese are now coming to the point where they talking to British will have to again enter the market for more up-to-date aircraft to cope with increasing tourist and local traffic within

However, China has given no indication in which direction it will head when it comes to

CHINA

modernising its airline, known as the Civil Aviation Administration of China (CAAC). Boeing has been most active

in seeking to drum up aircraft sales in China and probably has the inside ruoning if and when the Chinese decide to replace some of their agelog Soviethuilt Ilyushins and Antonovs. China is known to he

particularly interestd in Boeing's 737-200 Twio-jet which can carry about 115 passengers aed is both economic and versatile. The backbone of China's international fleet are 10 Boelog 707's bought in the early 1970s.

Apart from the Boeings and the Hyushins and Antonovs, China has 30 British Trideots which it uses on its main internal routes.

Tomorrow's advanced engines are on test, on time, on target. Today!

At General Electric, the future has arrived. Instead of waiting for market requirements to develop, GE has anticipated future needs with two new engines.

ong On the first day of test, the engine ran to a corrected thrust level of 61,000

Ling. On the first day of test, the engine ran to a corrected thrust level of 61,000 pounds, demonstrating outstanding specific fuel consumption—better than 100% on thrust goal =100% on all specs—on first run. Scheduled for certification in 1985, the CF6-80C will be ready for tomorrows widebodies such as the A300-600 run of 747SUD. Stretch 767 and military transport afforming CEMS6.3 could be ready.

In the 20,000 pound thrust class, the first fuel-saving CFM56-3 engine has com-

pleted initial tests with substantial margins meeting performance objectives. Built power the 737-300 and other medium-range aircraft of the future, the 43 is a

new yet mature engine. Since it has the same core and low pressure turbine as

new yet mature engine. Since it has the same core and low pressure turbine as the CENtso-2, the heart of the engine will have been proven in over 2.5 million the CENtso-2, the heart of the engine will have been proven in over 2.5 million flight hours abound the DC-8 and KC-135 before the -3 enters service in 1984. Two engines proving themselves. On time and on target for tomorrow's needs.

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terns to develop. On this articipated ruture fleeds with two flew engines. In the 56-62,000 pound thrust class, the CF6-80C is ahead of schedule in its test-

jets. China is known to be looking at various wide-hodied aircraft and is having discussions with several U.S. and European manufacturers, notahly Boeing, McDonnell Douglas, Lockheed of the U.S. and Aero-

Chinese officials are also talking to British Aerospace about the possible purchase of feeder-type aircraft such as the BAe 146.

Indication of contiouing Chinese Interest io what the West has to offer is the fact that a number of Chinese officials will attend the Farnhorough Air Show in September. The officials will be from CAAC and also from Ministries responsible for China'a aerospace industry.

One factor that may persuade the Chinese to make purchasing decisions soon is that they would almost certainly wio very favourable terms at present for aircraft like the Boelog 757, orders for some of which have been cancelled hecause of the precarious state of most airline companies io the West.

Foreigo aircraft industry representatives point out that China's outdated Russian fleet is extremely expensive to maintain, and therefore it makes good ecocomic sense to retire some of these alreraft.

some of these aircrart.

Figures are out readily available on the profitability of CAAC, but China's airline claims to have made a profit last year eveo though many of its international flights carry few passengers. Chinese domestic flights are thought to have a load factor of about 80 per



The prototype 17-passenger twin-engined Y-11T transport aircraft, built at Harbin in China. DK Aviation of the UK will be responsible for world-wide marketing, through a company to be set up in conjunction with the China Trade Centre. The Y-11T is a no-frills, five-ton, high-wing aircraft with a fixed undercarriage, intended for a wide range of transport and other duties. ..

ceot and according to one foreign businessman are "probably most lucrative."

If it is to further develop its international aviatioo capacity in the small short-haul aircraft China will have to upgrade its airfields. At preseot most of its fields are oot up to international standard because they are not equipped with advanced landing aids.

This means that fights are

This means that flights are which are more or less up to 1960s.

ger fleet, the Chinese Airforce is in need of modernisation. ofteo cancelled if there is a Aircraft in service are versions deterioration in weather condi- of Soviet-built Mig-19s and 21s. from the late 1950s and early

China has attempted to build a supersonic aircraft of its own, driven by Rolls-Royce Spey engines, but it has either cancelled for the time being or abandooed the project alto-

Acquisition by China of an advanced combat aircraft would seem a long way down the track. The Chinese simply don't have the cash for such an don't have the cash for such an expensive project. China's defecce planners have been looking at equipment which would give the Mig-21 squadrons an all-weather capability and more advanced weapons systems.

GEC Marconi Electronics group of Britain is one of the

companies involved in discus-sions with the Chinese oo the sions with the Chinese of the upgrading of its antiquated Airforce. British Aerospace is another British company which has had lengthy discussions with Chinese military planners about equipment supplies.

Chine has accorded as in

China has expressed an in-terest in acquiring the Sea Dart missile system for its Luda Class destroyers. According to a British Aerospace representa-tive in Peking discussions have reached quite an advanced

reached quite an advanced stage. The Falklands Wern which demonstrated the lethal capacity of the Exocet missile may have caused the Chinese to rethink their purchasing plans as regards the Sea Dart. The Sea Dart system is not as advanced as the Sea Wolf which was used quite effectively against Exocet missiles in the South Atlantic China's possible principal an-China'a possible principal an-

tagonists, ootably flie Soviet. Union and Vietnam, almost cer-

the military aircraft built under

ectations for the YXX project.

pate as equal partners in de-sign development and sales of

the aircraft, in addition to pro-

cautiously in this project. Back in 1977, the government

which they hope to partici-

must be imported from

capabilities as the Exocet. Chica has in the past expressed an interest in the British-built Harrier jump jet and will have been impressed by its performance in the Faklands conflict. However, there bas been no indication the Chinese wish to resume discussions about possible purchases of the Harrier.

Apart from the items men-tioned above, other areas of promise for international manufacturers of aerospace equipment include surveillance air-

craft and troop transports.

China, which has a smuggling problem along its coast, needs more suphisticated tracker aircraft than those presently in service. There is no doubt that China's Navy and Air Force would like surveillance aircraft like the Nimrod or the Orion,

like the Nimrod or the Orion, which also have a submarine detection espatility.

China's efforts in rocketry and satellite communication have seen well publicised and are impressive. China's testing of an intercontinental ballistic missue that the Pacific last year demonstrated. Its capacity to reach Moscow with its long-range missies.

The more recent announcement that it was well advanced in the development of a three-stage rocket to launch satellites into Earth stationary orbit is a

into Earth stationary orbit is a further indication of its grow-ing sophistication in this area.

Tony Walker

Moves to overcome technology lag

like the Toyotas and the Datsuns that jam the highways, hot gross sales in fiscal 1981 (eoding lo March 1982) reached Y327bo (\$1.3bn).

The Society of Japanese Aerospace Companies said that sales were op 15.5 per cent over the previous year. Actual production amounted to Y268bn-

or roughly \$1b0 while repairs alone totalled Y59bn or \$236m. Military aircraft accounted for 80.2 per cent of the total while civilian aviation took coly 10.2 per ceot while another 9.5 per cent was exported.

The exports consist of Mitsuhishi MU busioess jeta aod fusclase parts for Boeing'a new 767 commercial airliner.

Mitsubishi Heavy Industries has heeo producing their busi-aircraft for 15 years. So far, 711 have heen sold. There are now orders for 110 of their latest model, the fanjet MU-300 better known overseas as the

The small sircraft are manufactured by Mitsubishi in Japan and shipped to Mitsubishi Air-craft International at Dallas, Texas, where they are assemhled and fitted with Pratt and Whitney engines, cockpit instruments and interiors for marketing mainly in the U.S. The assembly plant is in San Angelo, Texas.

Most of the Mitsubishis are sold in the U.S. Of the 110 MU-300s on order, 100 are for the American market, the remaioder go to such countries as Venezuela and the UK. Of the 711 Mitsubishis produced thus far, only 70 are in Japan.

Japan has been talking with McDonneli - Douglas, Fokker, Boeing and Airbus Industrie. on the possible future development of a new 150-heat airliner. Japanese sources say that the decline in profitability of interoational airlines and general economic cooditions have put off completion of such a project for several years.

Japan is also involved in davelopment of a prototype engine jointly with Britain's Rolls-Royce, subsidised equally by the Japanese and British

The engine is designed for use on the 150-seat jet-liner which is due for production in the second half of the 1980s. In this XJB project. Mitsubishi, Kawasaki and Ishikawajima-Harima Heavy Industries are developing engine fans and low-pressure turbines while Rolls-Royce works on the compressors, high-pressure turbines and other components.

A prototype engine

JAPAN HAS a moderate but tested for shipment to Britain Companies has 133 members.

The Japanese Government

has, in fact, beeo generous with loans in furthering aircraft development. They provinded 50 per cent, or Y395m, or \$1.58m, for the YX project and Y1.488m, or \$5.9m, for 50 per cent of the YXX 150 seat

Kawasaki Heavy Industries has orders for 130 BK-117 twinengine helicopters developed

JAPAN

jointly with Messerschmitt-Bolkow-Blohm of West Ger-

Imports of alreraft and parts in caleodar 1981 came to Y355bn or \$1.4bn. Aircraft alone, mainly for the airlines, totalled Y214.8bn or \$859.2m.

The Japanese aircraft industry consists of five fuselage three aeromaoufacturers, engioe manufacturers oumerous subcootractors. largest are Mitsubishi, Kawasaki, Fuji and Shin Maiwa. The

formed a consortium of three Japanese aircraft companies, Mitsuhishi, Kawasaki and Fuji Heavy Industries. These companies are building the body sections of the Boeing 767. Theo the Japanese negotiated a 50-50 partnership with Rolls-Royce in development of an advanced aircraft engine. Now they want

oew jet airliner. Both Boeing and Airbus Industries want to huild a new airliner in partnership with Japan but on their own ferms. Japan wants to use the project to broaden its technological

similar 50-50 arrangement on

During World War II, the Japanese had developed a fet aircraft in the final stages, How-

ever, with the surrender, the steadily growing aerospace for a series of trials.

The Japanese admit that industry was dismantled. The lapanese air.

It does not produce thousands of Mitsubishis and Kawasakis for the project, which must be to crowd the world's airlines to cro

The Japanese began licensing production of trainers, fighters and helicopters with the establicence, the electronic gear lishmen€ of the Self-Defense The Japanese have high ex- Force in 1954.

The only airliner that the Japanese have produced since the war has been the YS-11. The SJAMC said that 182 of the YS-11, which is a 60-seater, uction.

were produced of which half
However, Japan is moving are still flying on domestic

airlines. Japan ranks fifth behind the U.S., France, United Kingdom and West Germany in aircraft production. The reason is the limited domestic market and the fact that constitutional restraiots keep military expenditures down to 1 per cent of

the GNP. The Japanese must develop their own commercial aircraft production in order to keep up with the world, experts say. This is hard to realise. Aiready. Lockheed has virtually droppe out of commercial surrent Industrie would not like to have another competitor, particularly

John Fuiii

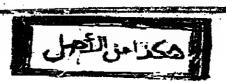
EXPANSION BY ISRAEL AIRCRAFT INDUSTRIES



The Israeli Kfir (Lion Cub) single-seat interceptor, long-range patrol fighter and ground attack alreraft, is built in Israel itself by Israel Aircraft Industries, 220 has demonstrated its capabilities frequently in recent years, and especially in the recent Israeli action in Lebanon The Kir is being followed by a new lightweight, single-seat, air defence and ground stack fighter, called the Lavi (Young Lion), with a first flight expected in 1984, and entry into service in 1986, replacing the Israeli Air Force's A4 Skyhawks, then the F4 Phantom lets

and finally the Kfir itself. inally the Khr usen.

Israel Aircraft Industries is a widely based aerospace group. It is also involved in civil aircraft (including manufacture of the Arava short take off and landing transport, the West-wind executive jet, while a new executive jet, the Astra, is under development). Office dist sions are engaged in electronics activities; em incering research, design and develor craft servicing, and equipment and comp



Exports have risen dramatically

CANADA'S aerospace industry, avionics, and CAE Industries Space Shuttle, have been costly swollen to about 110, or about divided about equally between is a world-class producer of both for individual companies one-third of the way to esti-Ontario and Quebec, with a lence from the world recession. Toronto and elsewhere specia-Those parts of the industry specialising in defence work, both components and overhaul, and in avionics and electronic systems acnerally, and employment in the same production of the Challenger, bave managed to keep up yolume and employment on the whole, while companies making engines and parts for the companies and parts for the companies with the companies making engines and parts for the companies and parts for the companies was a continuous and parts for the companies was a contin mercial aviation makers have cent in 1976 and 88 per cent in felt a sharp down-draught.

The Canadian aerospace industry comprises about 125 companies which make aircraft. engines. airframe components. satellites, electronics systems and components, including navisystems, flight simulators, component work, hydraulic gear and fuel systems. Aerospace is

They are located mainly in Montreal. Toronto. Winnipeg. and Otlawa, hut also in the Maritimes and Western Canada. The two largest employers are: makes the Challenger business-jet, a water bomber for firegeneral aviation in-Whitney engines, is next

simulators for commercial air- and

The industry bad a volume of

CANADA

gation and communication 1980, mainly due to engine and Aerospace is Canada's only secondary manufacturing industry with a long term favourable halance of trade. Despite the impact of the present reces-The two largest employers are: sion, sales are expected to Canadair, of Montreal, which double again by 1986, as the Challenger deliveries peak. Mr John H. Simons, chairman

fighting, and also airframe of the Air Industries Associa-components and defence pro-ducts; and Pratt and Whitney this successful record has come Aircraft of Canada, the world's about because of the industry's largest manufacturer of small determination to specialise, turboprop and turbofan engines undertake more research and development with Federal Government help, take commerdustry. De Havilland Aircraft Government help, take commer-of Canada, at Toronto, which cial and military aircraft makes the Twin Otter, the Dash component work, and find Seven, and is now developing world markets for the Challenthe Dash Eight, both commuter- ger wide-bodied business jet and

The successes of the past

Government financial sprinkling of plants further liners and military aircraft. A resources. Generally, the indus-West, has begun to feel turbu- host of firms in Montreal, try remains modestly pro6table. but the Government, besides its lise in other areas of aerospace. direct funding of research, has orders are running light for the guarantees outstanding for about C\$3on in 1981, even after about \$1.2bn in Canadair debt in the resource industries. inflation twice the level of 1976, to cover development and However, de Havil

ment at Pratt and Whitney.

The twn main problem areas, as a result of the recession, are Pratt and Whitney, the engine maker, and the two airframe firms. Canadair and de Havilland Canada, which are both Government-owned.

Pratt and Whitney has had to lay off around 2,000 workers entry of Canada into the A-320 as demand from the U.S. programme is now being holly general aviation industry has plummeted nearly 50 per cent in the past year.

New orders

U.S. small aircraft manufacturers comprise its principal market. Canadair's Challenger programme has taken much longer than expected and a second version, with more powerful engines, had to be developed to meet full market expectations for the aircraft. There have been some stretchouts in deliveries because of the recession, and costs have been affected by inflation. The coorpany has made some minor laytype aircraft with Pratt and the two de Havilland commuter offs this summer, and could have to make more.

While de Havilland's order Canadian Marconi specialises decade, including the Canadian book for the twin-engined Dash

mated break-even, and production will start only in the fall, the four-engine Dash Seven has been a disappointment, while older Twin Otter, widely used

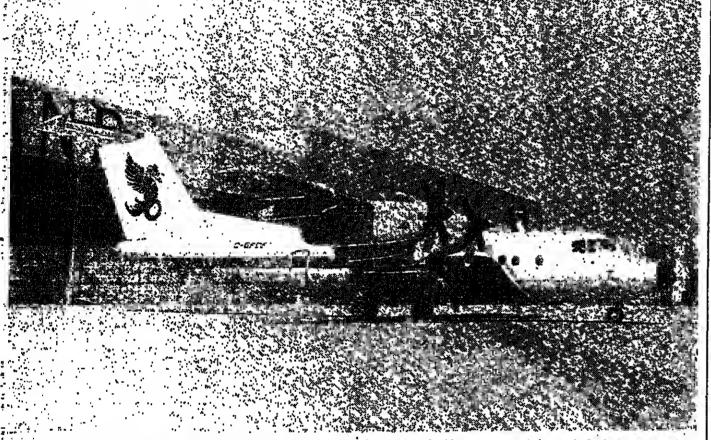
However, de Havilland Canada, with the support of the Government, has signed an understanding with Airbus Industrie of Europe to participate in development of the A-320 150-seat airliner, and to make airframe components for it, The Government would

invest about \$500m in the project, and would expect to gain at least 10 per cent of the manufacturing programme with de Havilland Caoada as an associate partner. The possible programme is now being holly debated inside and outside the industry, and domestic politics are involved because the Government wants a new aircraft plant in Quebec.

No final decision on Canadian participation is likely for at least a year, because of the uncertainty whether enough of the world's airlines will be able to afford the required number of A-320s for the project to get off the ground.

Air Canada would be expected become an A-320 customer, and it will bave to replace its DC-9s at some stage. Another factor will be the future of Boeing's rival "7 Dash 7" project, and a comparable venture from McDonnell Douglas of the

Robert Gibbens



The four turbo-prop engined de Havilland Canada Dash Seven airliner has sold widely throughout the world both as a commuter and feeder-airliner and as a general duty transport. A feature of this aircraft is its short take-off and landing capability

Industry 'reasonably confident'

Dusiness is at present hardly have annual sales exceeding Smith, defence manufacturing prototype aircraft. Following chock-a-block with orders. On AS150m (£88m). the other hand, despite recent budget cuts, the Australian Paper of 1976 spelt out a policy new round of major equipment self-reliance, the Government's their own capabilities reasonably aircraft industry so it can proahreast of international stand- vide independent support for all ards, and should ensure continu- defence pircraft. ing relatively gnod levels of employment for the local aero-

space industry. In general, Australia con-timues to rely no overseas sources for the design and construction of most of its larger and more complex weapons systems. At the same time, much has been done to harness local industrial resources to reduce Australian dependence on overtenance of this equipment.

erospace industry enmprises three main organisations: the Government Aircraft Factories

under 6,000-10 per cent more on gas turbine overhauls.

LIKE ITS counterparts else- than the bottom of the most re-where, the Australian aerospace cent work trough, in 1975—and

Since the Defence White modification klts, though in the armed forces are moving into a of increased Australian defence acquisitions which will keep aim has been to holster the local

It is this maintenance support

AUSTRALIA

role which currently provides the local industry with the greater part of its defence work. CAC currently overhauls the Snecma Atar gas turbine engine leas manufacturers for the main- for the Royal Australian Air Force's Mirages, as well as The base of the Australian Rolls-Royce Avon and Viper erospace industry comprises turbojets. At GAF major maintenance activity is related to the Mirage, while (GAF) and the Commonwealth Hawker de Havilland handles Aircraft Corporation (CAC), the maintenance work on the which operate side-by-side at RAAF's Caribou aircraft, the Fisherman's Bend, in Mel-pilalus Porter for the Army, bourne, and Hawker de Havilland Australia whose main base King helicopters for the Navy. In addition, Hawker has built They currently employ just up a substantial export business

and Whitney.

Despite the current recession the international aerospace Smith says the Australian aircraft industry is looking to the rest of the 1980s with reason-This is partly because of new military aviation programmes currently in a formative stage. well as the recognition that

> tralia will eventually assume a role as the centre for advanced aerospace technology in the Pacific and South-East Asia.

confidence.

pation) has been crucial as a

turing work.

potential source of manufac-

sub-contracts for engine com-ponent production from Rolls-

Royce, Snecma, Pratt and Whit-

ney, and General Electric, as

well as airframe contracts from Boeing, Lockheed and McDon-nell Douglas.

Bell, Boeing, British Aerospace, General Electric, Lockheed.

For example, CAC has scored

A major boost 10 the local industry will be its participation in the RAAF's McDonnell Douglas F-18 fighter-bomber programme. Another will be the recent contract awarded to the Australian Aircraft Consortium (a joint venture between CAC, Hawker and GAF; for design and development of a new turbo- to take up the proposal, as for the RAAF.

In June, the Australian thing about export prospects or Minister for Defence Support, employment potential. Mr Ian Viner, announced the award of a A\$36m contract to CAAC for a basic trainer, cover-

In the main, says Hawker's ing design, development, concommercial director. Mr Peter struction and flight-testing of successful and prototype develcurrently consists of sparcs and opment, further contracts are due to be awarded covering absence of significant defence manufacturing projects over the second half of the 1970s. the manufacture and flight-testing of 69 aircraft.

Government's AIP Programme (Australian Industry Partici-According to Mr Viner, production of spares and support equipment is likely to take total project costs to around A\$155m, at August 1981 prices. The new aircraft, which is eximpressively in its major speciality, jet engines, winning pected to enter service in 1988. will be the first manned aircraft since the 1950s to have been designed and built in Australia to meet military standards.

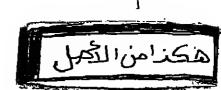
A third major project in the offing is Australian participation in the 150-seat Airbus The main beneficiary has been Industrie A-320 airliner, though Hawker, with contracts from Canberra, as well as the local aerospace industry, are currently concerned at the con-McDonnell Douglas and Prati tractual and commercial terms of the proposal from the consortium, which is thought to involve an investment of more and aviation industries, Mr than A860m for an Australian share of around 2 per cent.

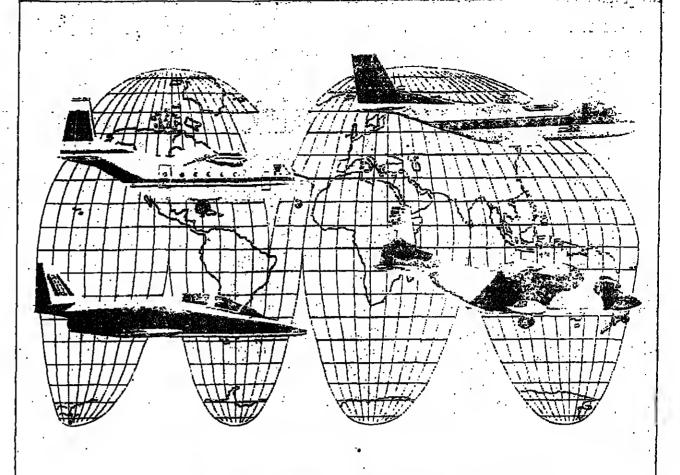
Memorandum

Recently, a memorandum of understanding was signed by de Havilland Canada, which could potentially see the Canaio the last few years the Aus- dians taking a 10 per cent stake tralian industry has become in the A-320. A similar memo-more competitive internation-randum, involving around 2 per cent, was signed by the Aus-There is also a bope that Australian aerospace industry last December, but in recent weeks a more formal offer has been received.

The feeling locally is that Australia cannol afford lu subsidise the A-320 programme, and while the project is readily described as one of the brightest opportunities for the industry in the second half of the decade, it is felt the Australian Government will be unwilling prop basic pilot training aircraft currently phased, unless it specifically wants to do some

> Michael Thompson-Noel





CASA SPREADS ITS WINGS AROUND THE WOR

Its Wing?

Today CASA's wings are the CASA C-212 Can
Do Commuter, The CASA C-101 Straight-Invental
Trainer, The CASA C-122 Military Trainer, and
And tomorrow the CASA NURLIANIOUS 235

And tomorrow the CASA NUR LANDOUS 235 next generation transport.

In the world of communer directal, the 1970's saw run C-212 take off. Right now there are note than 320 of these versarile twin tomorrow \$10.9, aircraft in service in some 25 common, Bank to the stringent requirements of the U.S. PAA part 25, the C-212 perform, equally well as an airliner, as a friegliner, or a combination of both.

The world of avaision in the 1930 1983 in fact, will see the introduction of non-zero 40 year enger.

will see the introduction of our new 40 passenger presented twin interpret chief the 1 N-236. This new air transport than the axis on the success of the C-212, and is also built to need 1/AA part 25 requirements. With its 50 000 frour ain range life, the CN-216 portends to be the proper artineofferglier/combination for operation

well must be 21 st county.
In the world of military aircraft, there's the
CASA C-101 jet trainer. This two sear, tandem
trainford delivers the lowest life cycle cost of my

operational mainer. It can start a student in basic Hight Banning, and take him straight through advanced training and into fractioner with all operational finite, including weapont delicated. The CHI can allowers was a light yround attack.

ancent for close emport.

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the feather information contact: Con true fones Actionations, N. A.; Rev. F.; mer. co. 4. Marked S.; Spant., Telephonet 247.25 (b), Tel. 1, 274 (C)





ANIUM INTERNATIONA Titankun International Limited nifers a special metals service to the airirame, sero-engine and component

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Most international airlines have incurred heavy losses in recent years and many continue to do so. Even the limited expansion now occurring in air travel is largely profitless—the revenue yield from the increased volume of traffic is not matching rising costs.

International airlines struggle for survival

The Boeing 767 twin-eogined airliner on the flight line at the company's Scattle, Washing, factory. The aircraft is about to enter

service with United Air Lloes of the U.S.

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of ahout 7 per ceot a year, slumped in 1980, according to the anoual figures compiled by ment in Organisation (the aviation been mixed, technical agency of the UN). In the U. The total number of passengers at 748m was down 6m on the previous year-the first-ever fall and there was a further

fall to 728m in 1981. Maoy airline executives. accustomed all their working lives to coping with the prob-lems of over-rapid expansion. were faced with a slump and all its consequent problemseconomic, industrial, social

and managerial. The industry in geoeral has coped well with the crisis. Despite all the problems, few airlines have gooe out of business so far (although this may be due less to the skills of their maoagemeots than to the desire of their bankers not to lose the heavy investments already made in them).

Reactions

Most airlines have incurred heavy losses, and maoy cootinue to do so. Managemeots' reactions have been to retrench hard, with heavy labour lay-offs, cancellations or deferments of oew equipment orders, the grounding and sale (where possible) of older, less-efficient equipment, and the eliminatioo of unprofitable routes.

It is now estimated by the International Air Transport Association that there are 150 wide-bodied and 200 narrow-bodied jet airliners for sale world-wide, equivalent to about 91 per ceot of the world scheduled airline fleet in 1981.

The pattern of the recession has been mixed. It has been worst in the U.S., where de-regulation (wlib consequent fiercely increased competition) has compounded many of the economic difficulties already being experienced (contrary to opioions de-regulation itself has not been the basic those economic difficultles 1.

The recession has also hit Western Europe hard, hut it

cession in its history.

The overall volume of world air travel, which through much of the 1070s the control of the 1070s of the 1970s showed an whether the recession is fading, average annual rate of growth as some observers believe. Over recent months, there have been some signs of an improvetraffic volumes, the International Civil Aviation although again this pattern has

In the U.S., hoth domestic international scheduled traffic showed a small rise during the first few months of this year. In the UK, the British Airports Authority has reported a small but consistent improvement in traffic over recent months.

The problem confrontiog the airdines is that this is far too small a growth to he of much value, and that even this limited expansion is largely profitless -the revenue yield from the increased volume of traffic is not matching rising costs. Although fuel prices have stahtlised in recent months, and in some cases have come down, other costs coolinue to rise, while the burden of interest payments on new equipment represeots a serious burden.

the world's scheduled airline on many airlines in the De- travel is improving slowly, and through the world's been passing through the world are expected to rise in 1982 such as Laker and Braniff, have from last year's \$66.3bn to gone out of business, and others from last year's \$66.3bn to gone out of business, and others from last year's \$66.3bn to gone out of business. inevitably had some effect in be a small recovery from last about \$70bn, but this growth

likely to amount to \$1.87bn, after taking account of about \$1.6bn in interest charges. This some \$2.1hn, after interest of \$1.73bn_

According to the IATA, iuterest rates are now taking over from fuel as the airlines biggest single headache. While, remost others are still incurring sent significant new orders for losses tand British Airways is the generation of "advanced The gross revenues of the in-

is over.

The interest rate problem is IATA that the losses of its 117 especially worrying. Mr Ray member-airlines for 1982 are Cope, finance chief of the IATA. says: "We are in a loss area that we seem unable to get out of. By 1983, all financing will loss is likely to rise to 1983 to be by horrowing. The airlines are becoming hostage to the loan market. There will be more Lakers and Braniffs by the time

tine of the most significaot effects of this situation is that the airlines are virtually unable markably enough, some airlines the airlines are virtually unable have reported profits in 1981-82.

Overall, it seems that air ternational scheduled airlines a case in points, while some, technology airliners they know they need. Those aircraft, with improved fuel efficiency, quieter engines, improved searing capacities and other benefits, could do much to help improve their overall financial situation, but they cannot afford to buy them

> iust vet. While a few orders are being placed with the maoufacturers, the rate is substantially lower than in previous years. Moreover, most of these orders are coming from airlines in the Third World, where expansion has been less affected by the recession, and where governments are supporting the expanof their atrlines as instruments of political as well

Nevertheless, the manufacturers are holding on grimly in the anticipation that hrighter times lie ahead. The general hope now is that there will be an end to the recession, or at least a dimioution of it, by the end of 1983.

Whether this in fact occurs remains to be seen, hut overall, both the airlines and the manufacturers bope that by the mid-1980s, the recession will be a thing of the past.

Reductions

as economic policy.

The other major difficulty for the airlines io their current economic situation is that they are not able to make the widesoread reductions in fares that they know are necessary in order to stimulate traffic.

They have seen what happens to airlines who sell their product-the airline seat-at less than production cost in order to generate a share of the market, and the situation in the U.S. of fierce fares cutting is widely regarded as a recipe for disaster—although no airline seems prepared to put a stop

Ouiside the U.S. specially in Western Europe, there remains a widespread pressure from some governments and many consumer groups for cheaper fares, but while the alrines do respond where they can in shaviog fares and offering special promotional rates, the overall trend in fares remains upwards, if only to keep pace with inflation.
It seems likely that increasingly the airlines will have to reduce, if not abolish, many of the trimmings and luxuries of

World air passenger traffic growth Revenue passenger miles, billion H.S. Son-H.S. Inter 4-2 2.1 5-9

World air passeoger traffic is forecast to grow to over 1,290bs revenue passenger miles by the early 1990s, with most of the growth likely to occur outside the U.S.

airline service as it has been Although even one bad accident known in the past. Aircraft to a wide-bodied jet can signifwill become more crowded, cantly alter the statistics, figures there will he less leg room as issued earlier this summer airlines seek to squeeze in as showed that in 1981 there were many passengers as possible, and in some cases food service may have to be reduced in

scale. The cirlines have paid considerable attention to the need to keep their passengers happy in a difficult economic situation, but in their present struggle for survival there is little they can really do to make their products as attractive as many of them would like.

What they can do, aod are trying to do, is to improve the quality of service they offer io other directions. Overall, air-line punctuality has improved over which the airlines have oo control (such as last year's air traffic controllers' disputes in the UK and U.S.) affect this

situation. The overall safety record of the industry is also improving.

only 355 passenger deaths compared with an average of 763 a year for each of the three preceding years, with only 12 jet airliner total losses in that year against an average of 21-22 for the three preceding years.

The world scheduled airline industry is thus coping with the recession. The industry that is likely to emerge at the end of it will be slimmer and tougher, with many of the wasteful practices of the past eliminated. Airlines will be better geared to take advantage of any improvement in the economic

climate. But even so, the heavy lo io recent years although But even so, the heavy losses inevitably industrial disputes of the receot past will take years to wipe out, and the ecocomic effects of the recession are likely to remain with the iodustry for a long time to

Michael Donne



Airlines have paid considerable attention to the need to keep passeogers bappy in a difficult economic situation

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it is two years ahead of the nearest. competititor.

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The factions prepare for battle Conditionality for

By Ray Dafter, Energy Editor

THE GOVERNMENT is about to be considered at next year's with varying intensity, by the surised water reactor technology.

saized upon by opponents of pointers are to be found elsenuclear power, angrily contested by mineworkers; used for their own business purposes by producers of oil and natural gas. and produce long faces among proponents of conservation.

Yon can sense that Mr Nigel Lawson, Energy Secretary, is beginning to wince. For a start, he has aiready sowed a seed of doubt about the likely accuracy -and thus usefulness-of the figures which will emerge from his department within the next few months.

"It does not help us very much to guess the unguessable." he told a recent gathering of international energy economists. mcluding members of the department's own staff-the very people paid to forecast.

Mr Lawson asserts that the traditional projections of UK demand and production, beloved

Calculations kept carefully under wraps

are less relevant in an open energy market in which fuels are treated merely as traded odities, But given the long lead times associated with major energy investment, is this hands-off approach appro-

Mr Lawson concedes that infecasts can raise useful questions about the "coherence of pelicy." More specificalls; he More specifically, he reckons that projections of fuel demand help to set a context for planning in the electricity, to the 1973 level. They include industry. Here there is a clear need to match generating and supply capacity with expected consumption,

pared to publish, with some of the 1960s—when ihronehput reinctance new energy forecasts rose by some 125 per cent —

to proffer a thick stick with public inquiry into the Sizewell which it is likely to be beaten. B power station, a proposed from different directions and development incorporating for the first time in the UK pres-

The Energy Department cal-The latest set of energy pro-jections, now in the final stages securely under wraps for the of preparation, are likely to be time being. But significant where, as illustrated in the accompanying table.

> For instance, the International Energy Agency has recently published UK projections, prepared in Whitehall last year, which suggests that overall energy demand could rise by over 25 per cent over the next nine years. On this basis all of the energy producers —the oil, coal, natural gas and nuclear power industries would be kept happy as there would he scope for each of them to hoost output. It would he left to the conservation lobby to bemnan what it might view as an unnecessary rise in demand.

But in line with Mr Lawson's professed view-that such forecasts should carry "Government health warnings "-the projections appear far too high in the current economic light. The mid-range figures, shown in the table, were based on unof some previous governments, justified optimism about an nuclear demand. early end to the economic recession. They were predicated on a GDP growth rate of 2.6 per cent annually in the 1980-85 period and 2.5 per cent a year in 1985-90.

> As the Confederation of British Industry is at pains to point out, the recession is not over yet. Because of this UK energy consumption has con-tinued to fall, to the equivalent of 41.4m onnes of oil in the April-June quarter, some 2.6 per cent below demand in the corresponding period last year. plies. Demand in 1981 was 3:5 per To cent below that of 1980 and, perhaps more surprising, over 10 per cent below consumption levels in 1973.

There are some within the energy industry who believe it could he another eight years or so hefore demand is restored one major oil company which supplied forecasts for the table ahove. For the oll industry, this is a painful projection because This is why Mr Lawson is pre- its ambitious refinery expansion



NIGEL LAWSON

was based on the assumption of a continuing growth in demand for products throughout the 1970s and 1980s. Hence the present bout of refinery closures cut-throat competition PWR will be a sound investamong petrol retailers.

It is the internal estimates of Central Electricity Generating Board which, if shared by the Government, could stir up the most controversy, for the CEGB is at the heart of the debates concerning coal and

In its statement of case to the Sizewell B inquiry the board carefully bedges its bets and provides a wide range of

However, the CEGB's central. or most likely. View provides the most telling estimates. Based on an annual GDP growth rate of I per cent over the next two decades, the board's projection of fuel demand is oot quite as bleak as that of the oil corporalittle scope for a growth in sup-

To complicate matters, the estimates in the statement of case exclude fuel which is notused for energy purposes, such as oil bunkers and gas and oil for chemical manufacturing. When the estimates are reworked, as in the table to take account of non-energy uses they show that total demand could grow by 17 per cent between 1981 and 1990 and by a more 21 per cent over the 1981-2000 period as a whole.

There can be little doubt that the figures will be seized upon by the opponents of nuclear TOTAL UK PRIMARY ENERGY DEMAND (m tonnes of oil or oil equivalent)" Nuclear/

1973 (actual) 1981 (actual)	96.6 45.2	fuel 78.2 69.6	Gas 26.0 42.4	7.1 9.4	Total 207.9 186.6
1990 (forecasts)				1.	
Dept. of Energy?	89.0	73.5	52.0	20.0	234.5
Major oil company	71.5	74.0	45.5	16.0	207.0
Ray/Robinsont	86.6	65.3	48.3	15.9	216.1
DRI Europes	80.6	79.6	49.3	76.5	226.0
CEGB (central view)	81.6	75.0 ,	48.0	13.2	217.8
2000 (forecasts)		-			
Major oil company	78.5	75.5	43.5	19.5	217.0
DRI Europe§	79.5	96.3	58.5		257.5
CEGB (central view)	79.2	68.4	48.6	23.2 29.4	225.6

Converted at 1m lonnes of coal squivalent=0.6m tonnes of oil equivelent; from Instructional Energy Agency raport "Energy Policies and Programmes of IEA Countres—1361 Review": April 1882. (Figures are mid-points of ranges submitted by the Department.); I George Ray and Colin Robinson. "European Energy Prospects to 1890." Stanland Hall, London NI 2AF, Feb. 1862, E85; SIRI Europea, London SWIM SHP. "European Energy Forecast Report." May 1882. (Figures taken from base lerecast.)

power who will contend that the PWR stalion is not needed. or at teast not needed yet. The CEGB will counter that irrespective of energy projections, the

ment.

The board will base much of its argument on the need to: demonstrate a new type of power plant in the UK, one which could form the basis of a nuclear building programme in the 1890s and beyond. Secondly, it will argue that there will be a cost benefit with the PWR because it is expected to generate electricity cheaply than a coal fired sta-

The way in which the two sides of the debate are now limbering up indicates that it will be a lively public inquiry, in which little quarter will be given. The coal industry can-not escape being caught up in the controversy, given that its future is so closely linked to the CEGB's generating needs,

The National Coal Board and the National Union of Mineworkers can take little comfort from the most recent estimates of UK energy demand. The industry's hopes in the 1970s that coal mining was set for an early renaissance are now rapidly evaporating.

In 1974-in the aftermath of the first major nil shock—the Government, unlons and Coal Board drew up the "Plan for Government, unlons and Coal . But the forecasts will have Board drew up the "Plan for wider significance. Oil companies will point out that if they total output of 135m tonnes by 1985. Three years later the plan

was revised under the heading " Coal for the Future " on the basis that demand at the end of the century would be between 135 and 200m tonnes.

Today's more sober view nf likely economic growth and energy demand means the Coal Board is becoming resigned to playing a less prominent role. It is aware of the CEGB's forecasts which show that UK demand for coal is unlikely to reach the 1879 level of consump-tion—129.4m tonnes (or the equivalent of 76.1m tonnes of ected to oil)—before at least the turn more of the century.

Such estimates must add urgtion or a gas cooled nuclear ency to the Coal Board's plan reactor. mic pits and replacing with modern, more cost-effective mines. However much the NUM may squeal the board is unlikely to find customers for the combined output from old pits and new mines, like those in the Vale of Belvoir and Selby. Yorkshire, If the board continues along its present path of depressed sales and high stocks it may not be many years before its losses (£428m before deficit grant in the last financial year) reach

> The fuel projections about to emerge from the Energy Department may be used by ministers and Coal Board officials to support their desire for a more rapid pit-closure programme.

1990s—from domestic sources then they will have to exploit a large number of new North Sea fields. They will argue that as these fields will be small the Government will need to relax its present oil taxation arrange-

crease in demand for natural gas over the next couple of decades and will stress that this need will only be met from domestic sources if they are given incentives to exploit new fields-a willingness on the part of British Gas Corporation to pay much higher prices for sup-

Energy Select Committee of MPs last month. "It is, in my view, a fundamental error to believe that markets can be made on paper using mathe-matical models:"

Dangerous to take major decisions

vation industry, are tied into projects involving long lead times and vast capital expenditures. decade to plan, build and commission a major project.

venture into unknown territory without some map, however frayed and dated, as Shell UK one of the leading British energy investors—pointed out. Shell has developed its own system of forecasting:

lng of the future shape of energy needs and for that understanding you need a range of forecasts," said a senior Shell executive. "It is dangerous to take major decisions in a vacuum."

70m-85m tonnes annually in the

Similarly, the oil companies will point to the projected in-

The Energy Department is unmoved. "Why get hot under the coller about something that may or may not happen in 20 years time?" said one official.

industry.. The fuel providers, and to some extent the conser-

in a vacuum'

launched in 1974. sound one

. This misses the point of

It can take up to a It would be foolbardy to

supervision. You need an understand-

lenders, too

By Anthony Harris

tasteful silk slings become the liquidity Street and many lesser U.S. London property life boat was they do.

evidently international: we'll belp, but only if it harts. The principle is undoubtedly a

The central banks are bitterly aware that their attempts to restore confidence after the Herstan collapse with the Basie Concordat of 1974 were only "The Government has no hot bank directors seem to have line to the future," he told the assumed that as long to have lender of last resort stood behind their international

operations, nothing could go BULUIA However, a lender of last resort is not a fairy godmother. Open market operations can

keeo markets liquid and funds available at a price, but they cannot turn bad debts into good Penn Square showed that out-

right folly will get the blind eye treatment. Mexico is a firm declaration that in a more deserving case, any lifeboat will leave the slips only if it is adequately manned by commerciai oarsmen.

There is a pressing financial reckless expansionism to over-reason for this: neither the faution.

International Monetary Fund

This could lead to a general nor the central banks have the resources to buy in all the caution is making life des-questionable 10Us created in perately difficult for the developrecent years, even if they ing countries. However, they do not so wish, for reasons of banking that central bankers can do

indefinitely long ones, have that much less to lend to any system into depression. one else-even if they wanted to, in their chastened state. In other words, forcing banks to said a liable, on balance, to be defationary.

dilemma facing central banks: of last resort.

IT WILL not be surprising if how to provide credit and new sartorial fashion in Wall any new inflationary excesses.

It also, therefore, helps to financial centres, and in some resolve another; how to get places in Europe, too. The interest rates down without ferocious official arm-twisting lighting a credit fuse. Banks which went on before the which have been through this Mexico rescue meeting has not experience will remain decidely been experienced since the cautious in any new lending

Caution is the only non-The governessy principles of catestrophic substitute for high Threadneedle Street are now interest rates in restraining interest rates in restraining credit.

There are two possible prob-lems, however, which could result from this effort. The first is simply statistical. As long as large lnans are kept going, so long will the banks require large deposits to finance these loans and the deposits are past of the money supply.

These statistics could set uff unnecessary atarm signals among monetarists

From the point of view 0 depositors, of course, it makes no difference whether their money is locked up in a Mexican rescue nr lent to finance expansion or speculation: but from the point of view or growth and inflation, the difference on the lending side of the halance sheet is all the difference in the world.

There is another danger which Mr Kii McMahon, deputy covernor of the Bank of England, and Dr Leutweiler in Switzerland have pointed out: There is now a danger that commercial bankers will swing from

This could lead to a general contraction of credit; already,

In the long run, there is little about this except make speeches Discipline has its price, and hope that they have got though. Banks which are locked the mixture right. A real into difficult situations, and collapse of confidence, among forced to turn short loans into lenders still more than among borrowers, can lock the whole

In such circumstances we will have to re-learn the lesson Keynes taught in the 1930s. To get things re-started in a depresliable. on balance, to be sion of this kind we can get no help from any lender of last.

This resolves one obvious resort: we will need a borrower

Letters to the Editor

Opportunities in European Development Fund works Construction needs

From Mr B. Hord M.E.P. Sir,-Mr King (August 12), has, in my view, responded to for encouraging other funds John Wyles' recent excellent such as the World Bank and article on the European Development Fund in a way that larger projects to be contemcan only be described as de plated by Lome countries and I featist. His letter serves to believe that Mr King seriously exemplify the mood among many UK firms which ensures that over recent years only some and viability studies can often 6 per cent of EDF works cou-be the key to much larger selftracts have been won by the UK compared to 42 per cent

by the French. It should be appreciated that the current EDF 5 will total presents an increase of 62 per of Lome countries is too great cent over Lome I. Furthermore, and that UK experience in the cent over Lome I. Furthermore, Mr King and UK contractors EDF is low, I feel that more

Arab money enables many more. believe that Mr King seriously underestimates the value of EDF contracts. EDF contracts financing schemes and the current review by the European Commission could well expand even further the catalyst nature

of EDF finance. Mr King states that the spread should perhaps bear in mind British contractors would be that participation in the fourth more successful with tender

EDF has in fact shown a multi-plier effect of seven. The scope for encouraging other funds had actual experience and/or in types of contract work where they had a clear expertise.

> bined with a positive and con-structive present attitude. rather than the present negative response to EDF works contracts, recognising the good reputation enjoyed by British firms and the fact that the majority of Lome countries are Anglophone. I do not see why the UK should continue to lansuch a paltry level of contracts in this sphere of growing opportunity.

when threatened with costs up to the House of Lords.

chortle about playing with fire should realise that the Revenue

now regards every nerson who

attemots to avoid tax by any method it decides to be un-

acceptable (eg. Delaware link) is fair game for "the treatment."

A. E. Harper. 2t, Ettham Park Gardens, \$29.

Sir.—Mr Stacey (August 121 is absolutely right. Orders for industry and the jobs dependent upon them will not come

about through changes in taxes

or through other government activity, helpful though this could be if properly organised together with industry. Salvation can only come through

more firms identifying correctly

what the markets of the world.

including our own home market,

want to buy; designing, promot-ing, selling and servicing those

products in a thoroughly pro-

fessionel manner. All this work

has to be done in depth. When

it is the rewards come, as is

shown by successful firms

Until this happens, putting

more money in people's pockets

will simply result in spending

on more imports: for many rea-

sons the British consumer as

well as industry has clear know-

ledge of what is the hest buy-

too frequently it is foreign.

whether Japanese, Continental,

American or British.

including "punk" liligation.

Job protection

From Mr A. Kennoway

and creation

Sanctimonious taxpayers who

Brian Hord. 18 Golden Square, W1. From Mr S. Leslie

dustry," Auguet 17). But there are other factors. The construction industry has

been hit harder and longer any industrial sector. Furthermore, a corollary of the fact that there are virtually no "imports" of construction is sueb as crushed stone or sand

trial competitiveness), present

rather less than last year's underspend in the English trunk road budget), the short term nutlook for construction redent says elsewhere, there is general pessimism in all sectors activity remains as far away as

revenues does demonstrate that there is real scope for the Government to increase public spending without increasing borrowing or taxes. If the claim that government oil revenue next year could be £4bn higher than the Treasury forecast is even half true then there can he no real excuse not to increase public capital spending. This could be done at little risk in inflation.

British Aggregate Construction. Majeriats Industries. 25. Lower Belgrave St, SW1



This year marks the Golden Anniversary of Wheelock Marden and Company Limited, which was established as a publicly-listed company in Shanghai on 22nd August 1932. Our history can, of course, be traced back much further to 1857 when a partnership in the name of Wheelock & Co. was established on the Bund in Shanghai at approximately the time depicted in the above painting.

The Head Office of the Wheelock Marden Group is located in Hong Kong and our interests include shipping, real estate, retailing, trading, insurance, manufacturing, share and money broking, travel and general investment activities. The Group owns or is associated with operations in Japan, Bermuda, Norway, Indonesia, Philippines, The People's Republic of China,

Liberia, Panama, the United Kingdom and Australia. Wheelock Maritime International (U.K.) Limited is the Group's Shipping Company in the United Kingdom and is principally engaged in leasing and chartering activities.

Duran Limited is the Group's other major

operating UK Company. It is engaged in real estate particularly in London where several refurbishment and development projects are being undertaken.



The Wheelock Marden Group 1982 Our Golden Anniversary Year

The Inland Revenue and punk legislation

From Mr A. Horper
Sir.—The latest Inland
Revenue propaganda against tax
avoidance (on the "Delaware
link" August 17) has snister overinnes. It emphasises the extent to which it has achieved ascendancy over its political (supposed) masters. Govern-ment's abhorrence of becoming embrolled in routine administration is understandable, but not its inability or reluctance in control the Revenue's general policy in managing the UK tax system, especially where the exercise of discretion is essen-

The Delaware link is about avoidance (not illegal evasion) of U.S. tax. What objection can there be to a company managed and controlled, and resident, in the UK deducting interest paid against UK tax? The second that this subjective test is deduction for U.S. tax (not a operated in practice at the whim deduction for U.S. tax (not a operated in practice at the whim is a direct consequence, by no one. It tasted blood when tronically, of the U.S. tax it found it could bector and system's insatiable appetite for abuse taxpayers who partici-jurisdiction. They tax, and must paied in artificial avoidance

Some readers may find it en-puraging to learn that wherever resident. couraging to learn that nur may be more concerned by the divulged but one general method and manner of doing sn.
Rumour has it that taxpavers has a blank cheque for lax liti-

exaction must be authorised by it is unlikely in be beld so the democratic process in because each taxpayer gives in, clearly defined circumstances.

If Parliament wishes to tax apples, it cannot lax oranges until it changes the law (which it cannot do with restrospection and instice. The Revenue has no right to beap approbrium no those who create oranges to avoid a tax on apples, stitl less to bully, threaten, abuse and warn them off. Whether there should be a tax oo oranges or apples is a morally inert propo-sition; indeed how often is today's apple tax repealed by

tomorrow's orange tax? A recent bypocrisy is to divide tax avoidance into "artificial" (OK) and other Inot OK). One man's tangerine, however, is another man's orange. Those who congratulate them-selves on eschewing the Delaware link may find that their covenant to a child at university

The real danger is precisely double deduction for UR tax) of the Revenue which is elected therefore give tax relief to, schemes without interference companies from politicians (there are no

Revenue is so assiduous in clos- not allow all these unscruptious ing the IRS's loopholes. Others and vindictive practices to be and their advisers were warned gation financed by readers' taxes. The Revenue insists on Tex avoidance is a legitimate taking each participant's case exercise. If not yet a virtue, rather than a test case in settle Whether or not to indulee in it all. No commercial litigani and, if so, in what form is a personal decision for each individual and board. Taxing ease differ so slightly that this is abuse of the court's process; involves expropriation and its execution must be authorized by

not a satsuma after all, but full-blooded orange.

protecting tax

Professional confidence does whatever the merits of his case, Ashstead, Surrey

Sir.-There are many good reasons for using construction to blow some life into the embers of the British economy. -Given such an approach com-Some of these are identified by your economics correspondent ("The pressure to help instates, one of the better reasons is that the construction industry is indigenous: it is British companies and the British labour force which would benefit from any construction boost.

than most. As a result, unem-ployment is now the highest of that absence of British orders cannot be made up for by greater exports of materials

and gravel. There is an increasingly urgent need to modernise and replace Britain's ageing infrastructure. Even in the good of its national income to pub lie capital investment than uther developed nations. Now in the bad times, far from try ing to correct this imbalance iwhich one might have thought of increasing Britain's indus

spending constraints have widened the gap.

Despite the extremely modest boost in the March budget (which in fact will amount to mains gloomy. As your construction industry corresponof construction. Our own members' business has certainly reflected the turn ound in sentiment which suggests that the return to desirable levels of

Yet another news item on oil

Shaun Leslie.

Companies and Markets

TAXABLE PROFITS of Dublinbased Independent Newspapers moved ahead from IEL01m to moved anead from 121.01m to 1£1.12m in the first half of 1982. on iurnover ahead hy 12 per cent at 1£30.03m, compared with T£26.67 m.

Earnings per 25p share of this group which publishes and prints newspapers including the Irish Independent and the Evening Herald, are given higher at 6.95p (4.14p), though the interim dividend is maintained at 4p net. Last year a total of 11p was paid from pre-tax profits of 152.15m

Mr A. J. F. O'Reiliy, chairman, says the increase in turnover maioly reflects increases in covar maioly reflects increases in covar charges and advertising rates in the Irish operations. The overall outlook for the group in the second half indicates the outcome will be satisfactory against the present difficult trading conditions. trading conditions.

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Economic activity in both Ireland and abroad decreased substantially in the first half, and therefore Mr O'Reilly considers the results reasonably again-

poor medium-term prospects the Milton Keynes printing business was closed. The net financial effect is not yet precisely determinable, but will not have a significant effect on shareholders funds, Mr O'Reilly says.

On April 21 the group bought 42 per cent of Nutley Invest-ments, which owns the Sunday

World, for £2.63m. Profits of Independent were struck after depreciation of £602,000 (£489.0001, while tax took £280,000 (£253,000). interests came to £18,000 (£279,000), leaving attri-butable profits of £823,000

BANK OF AMERICA INTERNATIONAL

LEHMAN BROTHERS KUHN LOEB

Union Bank of Switzerland (Securities)

COMMERZBANK

August 25, 1982

SOCIÉTÉ GÉNÉRALE

Exeter Bldg. reaches £391,000 midway

Exeter Building & Construction although work has had to be Group reports a rise in pre-tax fought for in fierce competition, profits for the six months to the chairman, Mr D. Sloneman, June 30, 1982 from the previous says. New housing, commercial record of £364,000 to £391,000, and industrial development prom turnover up from £12,03m to moted directly by the group £15.14m. The directors have forms an increasing part of its work and the timing of accruals from these sources cannot be furecast with certainty. Mr Stoneman says these factors could be significant for the full profits of £287,000 (£229,000).

This construction

holding and management company says that trading margins are being steadily eroded in the current adverse climate, especially in some of its traditional activities. Property development has halanced this decline.

Australian companies' coal deal

This announcement complies with the requirements of the Council of The Stock Exchange

U.S.\$100,000,000

SPERRY CURAÇÃO N.V.

15% NOTES DUE 1989

Unconditionally guaranteed as to payment of principal, premium, if any, and interest by **SPERRY CORPORATION** (incorporated with limited liability in Delawarc) The following have agreed to purchase the Notes: BLYTH EASTMAN PAINE WEBBER INTERNATIONAL LIMITED

CREDIT SUISSE FIRST BOSTON

The Notes, in the denomination of U.S.\$1,000 and \$10,000 issued at 100 per cent. have been admitted to the Official List by the Council of The Stock

Exchange, subject only to the issue of the Temporary Global Note. Interest is payable in arrears on September 1st, commencing on September 1st 1983. Particulars of the Notes are available in the Extel Statistical Service and may be obtained during normal business hours on any week day (Saturday and public holidays excepted) up to and including September 6th 1982 from the broker to the issue:

Cazenove & Co.,

12 Tokenhouse Yard, London EC2R 7AN.

>SPEIZZY

TWO BIG Australian coal pro- and Arco of the US. Japan's to supply Japanese steelmakers with substantial tonnages of coal over the next three years.

for the Curragh project in cen- tonnes of coking coal Curragh tral Queensland, which has undertaken to supply a total of 4.5m tonnes of coking coal, worth around A\$250m (£143m).

The duration and aize of the contract reflect the current uncertainty in the world coal market, according to Sir Andrew Grimwade, chairman of Austra-lian Consulidated Industries lian (ACI).

ACI has a 30 per cent interest held by R. W. Miller of Australia gica of Spain.

The half-year turnover of Heppell Shops & Interiors — the purchase of which was announced in June - has not heen consolidated into the group's

The board's policy is to proas halanced this decline. gressively broaden the scope of Order books for the second the group's activities, Mr Stonehalf are reasonably good, man adds.

jects have announced agreements Mitsut has 10 per cent. The deal, with deliveries set to start in April 1984, guarantees the project a good start, but the The bigger of the two deals is huyers for the remaining 500,000

> will produce each year. The second agreement is for the Oaky Creek project, also in central Queensland, to supply a total of 1.5m innnes of coking coal over three years heginning

Oaky Creek is being developed hy a joint venture in which MIM background, and there is little Holdings bolds 79 per cent, with propect of early improvement in small stakes in the hands of Estel Hoogovens of the Netherlands, Nunva Italsider of Italy in Curragh, with similar stakes and Empresa Nacional Siderur-

The loilewing companies have not field dates of board meetings to but Stock Exchange. Such meetings are usually held for the purposa of considering dividends. Official indications are not available as to whether the dividends are interims or finals and the sub-divisions shown below are based mainly on last year's nimetable

TOBAY Interime: Anglo American Industrial Biagden Industries, Momes (Memory and Electronic Components). W. N. Finals Mountleigh, A. J. Warthingto

FUTURE OATES Globe & Phoenix Gold Mining Aug 2 Murray Glandevon Inv. Trust Sept 13

Midway slip at Ward **Holdings**

Pre-tax profits at Ward Holdings in the six months to April 4 1982 slipped from £310,000 to £302,000, after a reduction in turnover from £6,52m to £6,3m.

The board is recommending same-again net interim dividend of 1.19p per 10p share. Last year a total of 4.2p was paid out from pre-tax profits of £1.22m. Tax for the six months was

changed at £38,000 little (£37,000). The board of this holding cominterests says that in the housing market the company is still fight ing against a harsh economic background, and there is little

the situation.
However, the company's manu facturing activity continues to expand and investment in this

PENDING DIVIDENDS

statements may be expected in the next few weeks are given in the following table. The dates shown are those of last year's announcements except where the forthcoming board meetings findicated thus I have been officially notified. Dividends to be declared will not necessarily be at the amounts to the column headed "Announcement last year."

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M. J. H. Nightingale & Co. Limited

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THE TRING HALL USM INDEX 128.0 (+0.2) Close of husiness 20/8/82 Tcl: 01-638 1591

BASE DATE 10/11/80 100

LADBROKE INDEX 580 583 (+14)

FINANCE FOR INDUSTRY TERM DEPOSITS.

Deposits of £1,000-£50,000 accepted for fixed terms of 3-10 years.

Interest paid gross, half-yearly. Rates for deposits received not later than

3 4 5 6 7 8 9 10 101 101 11 111 111 111 112 112 Deposits to and further information from The Treasurer, Finance for Industry plc, 91 Waterloo Rd., London SEI 8XP (01-928 7822, Ext. 367).

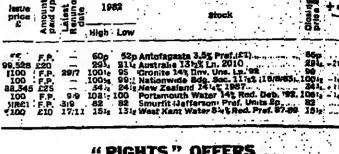
Cheques payable to "Bank of England, 2/c FFF" FFI is the holding common for Toronto. is the holding company for ICFC and FCL.

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FIXED INTEREST STOCKS



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BASE LENDING RATES

A.B.N. Bank 11 Allied Irish Bank 11 Amro Bank 11 Amro Bank 11 Henry Ansbacher 11 Arbuthnot Latham 11 Associates Cap. Corp. 12 Banco de Bilbao 11 BCCI 11 Bank Hapoalim BM 11 Bank of Irelaod 12 Bank Leumi (UK) pic 11 Bank of Cyprus 11 Bank of Cyprus 11 Bank of N.S.W 11 Bank of N.S.W 11 Bank of N.S.W 11 Banque Belge Ltd 12 Banque Belge Ltd 12 Banque Belge Ltd 12 Bremar Holdings Ltd 12 Bremar Holdings Ltd 12 Brown Shipley 11 Canada Perm't Trust 11 Cayzer Ltd 11 Cayzer Ltd 11 Cayzer Ltd 11 Cayzer Ltd 11 Choulartons 12 Cittbank Savings 11 Choulartons 12 Comm. Bk. of N. East 11 Cooperative Bank 11 Cooperative Bank 11 Cooperative Bank 11 Column Bk. of N. East 11 Cooperative Bank 11 Column Bk. of N. East 11 Cooperative Bank 11 Column Bk. of N. East 11 Cooperative Bank 11 Column Bk. of N. East 11	ની કરિલ્ટી મેં ઉપલગ્ધ કરે કરે તે કે માં માતા કરે છે. તે કે કે માતા કર્યા કરે કરે કે માતા કરે કરે કરે કરે કરે કે માતા કર્યા કરે	Robert Fraser 124% Grindlays Bank 211 % Guinness Mahon 11 % Hambros Bank 11 % Hambros Bank 11 % Hargrave Sees. Ltd. 11 % Heritable & Gen. Trust 11 % Heritable & Gen. Trust 11 % Heritable & Gen. Trust 11 % Hongkong & Shanghai 11 % Kingsnorth Trust Ltd. 12 % Knowsley & Co. Ltd. 11 % Kingsnorth Trust Ltd. 12 % Knowsley & Co. Ltd. 11 % Kallinhail Limited 11 % Mallinhail Mestminsier 11 % Mallinhail Westminsier 11 % Norwich Ceneral Trust 11 % Toxico Dev. Bank 11 % Trade Dev. Bank 11 % Trade Dev. Bank 11 % Trade Dev. Bank 11 % Trustee Savings Bank 11 % Trustee Savings Bank 11 % Williams & Glyn's 11 % Williams & Glyn's 11 % Williams & Glyn's 11 % Wintrust Sees, Ltd. 11 % Vorkshire Bank 11 % Yorkshire Bank 11 % Toxicomories 1 % Accepting Hauses Commotes 1 % Toxic Suort-term (8.000: 12mont)
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This advertisement complies with the requirements of the Council of The Stock Exchange. It does not constitute an invitation to subscribe for or purchase any securities.

Du Pont Overseas Capital N.V.

(Incorporated with limited liability in the Netherlands Antilles)

U.S. \$200,000,000

141/5% Guaranteed Notes Due 1989

and

Warrants to Purchase

U.S. \$200,000,000 13 4 Guaranteed Notes Duc 1989

The 14'3% Notes and 13'4" Notes will be unconditionally gnaranteed as to payment by

E.I. du Pont de Nemours and Company

The following have agreed to subscribe for the 14% Notes and the Warrants:

MORGAN GUARANTY LTD CREDIT SUISSE FIRST BOSTON LIMITED

Morgan Stanley International

ALGEMENE BANK NEDERLAND N.V. CRÉDIT LYONNAIS

BANQUE BRUXELLES LAMBERT S.A. DEUTSCHE BANK ARTIENGESELLSCHAFT

KLEINWORT, BENSON LIMITED SALOMON BROTHERS INTERNATIONAL

Nomura International Limited J. HENRY SCHRODER WAGG & CO. LIMITED

SOCIÉTÉ GÉNÉBALE DE BANQUE S.A.

SWISS BANK CORPORATION INTERNATIONAL LIMITED

Union Bank of Switzerland (Securities) Limited

WOOD GUNDY LIMITED

The 141/8% Notes, issued at 100 per cent plus accrued interest (if any), in denominations of U.S. \$5,000, the Warrants issued at U.S. \$38-00, and the 131/4% Notes in denominations of U.S. \$1,000 issuable at 100 per cent plus accrued interest (if any), have been admitted to the Official List by the Council of The Stock Exchange subject only to the issue of temporary global Notes and the global Warrant. Interest on both Note issues is payable annually in arrears on August 25.

Particulars of the Notes and the Warrants are available in the Extel Statistical Service and may be obtained during usual business hours up to and including September 6, 1982 from:—

August 23, 1982

Cazenove & Co. 12 Tokenhouse Yard Loudon EC2R 7AN

Morgan Guaranty Ltd 30 Throgmorton Street London EC2N 2NT

This advertisement complies with the requirements of the Council of The Stock Exchange. It does not constitute an invitation to subscribe for or purchase any securities.

IBM Credit Overseas N (Incorporated under the laws of the Netherlands Antilles)

U.S. \$100,000,000

13 % Notes due August 18,1987 and

Warrants to Purchase

U.S. \$100,000,000 13% Notes due August 18,1987

Both Note Issues will be Unconditionally Guaranteed by

IBM Credit Corporation

(Incorporated under the laws of Delaware, U.S.A.)

The following have agreed to subscribe for the Notes and the Warrants-

MORGAN GUARANTY LTD

BANQUE NATIONALE DE PARIS

SALOMON BROTHERS INTERNATIONAL

BANQUE BRUXELLES LAMBERT S.A.

MORGAN STANLEY INTERNATIONAL

S. G. WARBURG & CO. LTD.

SOCIÉTÉ GÉNÉRALE DE BANQUE S.A.

DEUTSCHE BANK

AMRO INTERNATIONAL LIMITED BANQUE PARIBAS

CRÉDIT LYONNAIS COUNTY BANK LIMITED MERRILL LYNCH INTERNATIONAL & Co.

DEUTSCHE BANK AKTIENGESELLSCHAFT

CREDIT SUISSE FIRST BOSTON LIMITED

Union Bank of Switzerland (Securities)

Swiss Bank Corporation International

The 137% Notes issued at 99% per cent plus accrued interest, in denominations of U.S. \$5,000, the Warrants issued at U.S. \$25 and the 13% Notes in denominations of U.S. \$1,000 issuable at 100 per cent plus accrued interest (if any), have been admitted to the Official List by the Council of The Stock Exchange subject only to the issue of temporary global Notes and the global Warrant. Interest on both Note issues is payable annually in arrears on August 18.

Particulars of the Notes, the Warrants and the issoer are available in the Extel Statistical Service and may be obtained during usual business hours up to and including September 6, 1982 from:—

August 23, 1982

Cazenove & Co. 12 Tokenhouse Yard London EC2R 7AN

Morgan Guaranty Ltd 30 Throgmorton Street London EC2N 2NT

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CREDITS

Mexico granted a short but vital breathing space

MEXICO LAST week won a efforts to overcome debt prob- that terms were announced for lems, which, from the point of a \$500m credit to be raised view of sbeer numbers, constitute the worst the Eurocredit

f market has ever seen. - On Friday in New York over 100 creditor hanks agreed in principle to a moratorium of all payments of principal on medium and short-term debt for a period of 90 days from the " date of maturity.

This will give a space of over three months in which Mexico can complete its agreement with the IMF on credit facilities of over \$4bn. Last week it had also secured credits of \$2bn from the U.S. and was in the final stages of talks on a \$1.5bn credit from the central hanks of the industrialised world.

In addition commercial banks are to average a \$500m to \$1bn additional loan for Mexico, but meanwhile Mexico itself will continue to meet interest ohligadeht and service fully all its hond issues and other forms of

All this will allow time for more talks to begin on a more permanent restructuring of the country's foreign deht, especially the massive \$17hn of short-term debt piled up over the past year. speed with which hanks approved Friday's moratorium that the world's monetary are prepared because of the size of the debt

-to exert strong pressures on the commercial hanks to achieve a smooth solution. But on Friday commercial hororwers could start to rise as bankers were still pointing out that tackling Mexico's deht prob- their return on assets as well lems will remain a delicate and as continuing their flight into complex affair. The \$60hn of quality after the Mexican probpublic deht includes over on of bond issues, commercial But this will only paper and bankers acceptances apparent later as European borrowers are still largely bank deht conpublic deht includes over \$3hn lems, of bond issues, commercial But this will only become

bundred banks altogether.

Several feared that a three remains rather quiet. month moratorium may simply not prove long enough to deal with the problem completely and it may have to be extended. And meanwhile the aftermath of Mexico's problem is expected at the very least to redouble the restraint on lending to the whole of Latin America that developed after the Falklands lelands cricis.

banks of details concerning the moratorium agreement. In September a further meeting will be held with the banks to consider a longer term solution.

Peter Montagono Islands crisis.

vital breathing space in its quickly as it was on Friday too

tric utilities Edelca and Cadafe. These provide for a maturity of eight years with four years grace and a margin of 1 per cent over Eurodollar rates. Vene-zuela is aticking to its refusal to raise monay over the expen-

jointly by Venezuela's state elec-

sive U.S. prime rate. It is not clear whether the loan will he brought to the market quickly. It is to be led by eight banks-Arab Banking, Bank of America, Bank of Tokyo, Chase, Lloyds Bank International. Mitsui. Ste Generale, and Sumitomo.

But a potential problem facing these banks in syndicating the credit is simply that available manpower in potential participant banks is now being heavily concentrated on assess-ing the Mexican position. There is little opportunity for decisions to be taken on other matters.

In economic terms there is scant reason for tarring Venezuela with the Mexican hrush as it has very corsiderable foreign exchange assats, a tight budget policy, and an inflation rate of only about 13

ger cent. lebt piled up over the past year. But the underlying fear of It was already clear from the many Europankers is that it will again become hard to distinguish between the relative merits of individual Latin American credits hecause of the mood of global restraint.

Some hankers were already arguing last week that margins on Eurocredits for European banks concentrate on improving

tracted with probably several inactive because of the summer holldays and overall the market

This week attention thus seems likely to remain focused on Mexico which is scheduled to inform its full range of creditor banks of details concerning the

Peter Montagnon

INTERNATIONAL BONDS

Selective tone creeps into trading at the end of a hectic week

IT WAS a busy week for the World Bank last week. The Bank found itself issuing securities in dollars, D-marks, Swiss francs and guilders as interest rates beaded decidedly lower.

Over the week as a whole sixmonth Eurodollars shed two points to 111 per cent, with D-mark rates down 1 at 81 and Swiss franc rates also down i point at 47 per cent.

The big impetus for these declines came last Tuesday when Dr Henry Kaufman, Chief Economist at Salomon Brothers, forecast that long-term U.S. hond rates would decline to be-tween 9 and 10 per cent over the next year. Reaction in the bond markets was immediate and Wednesday was one of the most hectic trading days ever as prices of dollar Eurobonda

Despite a mild correction on Thursday prices were still mov-ing ahead on Friday, although hy then a distinctly selective tone had crept into trading in the wake of further developments on Mexico's debt prob-

soared.

On average, prices were about point higher on the day, hut individual movements were very mixed as the market sought out quality paper and prices of aome honds issued by the backs are prices of aome honds issued by the backs are prices of aome honds issued by the backs are prices of aome honds issued by the backs are prices of aome honds issued by U.S. banks actually fell.

A case in point were issues hy Manufacturers Hanover which atepped in briefly to support its paper in the Euromarket on Friday morning, although later in the day husiness

3 Month

stabilised with two-way trading in the issues at a level about point helow the previous Chase Manhattan's floating-

rate notes also weakened some-what, but in general dealers said such a reaction appeared over-Mexican honds themselves

were sharply weaker on the week, particularly on the con-tinent where the latest SwFr 80m issue by Nacional Financiera fell ten points to give a closing yield of 12.17. D-Mark Mexican issues were yielding hetween 15 and 20 per rent by the end of the week and dollar were also lower where

Overall the Eurodollar bond market put on about 31 points during the week on average

traded

which meant that as sometimes in the past price rises in Eurobonds were smaller than in the New York bond market.

EURODOLLAR

6-Month

Yields were thus falling much faster on the other side of the Atlantic which made new issues in that market more attractive to horrowers. A feature of last week was a spate of foreign issues in the New York market. including the 13% per cent issue for Norwegian Export Finance, which was raised to \$150m from

an original \$100m. This week Finland is also expected to tap the New York market for \$100m of five-year honds with an issue led hy Merrill Lynch expected to yield well under 14 per cent.
It would be much more ex-

pensive for Finland to tap the Eurobond market at the

moment, and it is this thought as well as the anticipation of still lower rates to come, that is clearly holding back borrowers of fixed-rate dollar Eurobonds who issued a total of only \$500m in new paper last

The fast moving market last week almost led bankers to forget completely a problem that on Monday bad seemed likely to threaten the whole nature of the business.

the ability of U.S. entities to issue bearer bonds in the Euromarket was redrafted so that such bonds would simply have to carry a warning of the tax implications for U.S. citizens who huy them.

These implications includa provision that capital losses on such honds are not tax deductible and capital gains must be treated as ordinary income. In addition they impose a report-ing requirement if payment of interest is made inside the U.S.

Several bonds which had been held up while the legislation was redrafted were allowed to proceed by mid-week so that Friday the whole issue had turned out to he a storm in a

In Germany the capital markets aub-committee agreed on Monday a new issue calendar of 10 issues totalling DM 1.1hn for the coming month.

CURRENT INTERNATIONAL BOND ISSUES

AUSTRALIAN PROJECT FINANCE

Banks may regret relaxing on risks

IT WOULD be a useful exercise for bankers involved in the that there were some differences area of who was shouldering which risks.

It is too early to judge yet, but there are grounds for suspecting that some hanks were so caught up with last year's hoom in the Australian mineral hooks which they may live to

regret. Eighteen months ago, banks were queuing up to lend on reduced in some recent Aus-Australian projects. The tralian projects to 1.5 times or country's political stability and less. country's political stability and undoubted mineral wealth made. Completion risk. Banks have il a very attractive credit risk for international hanks.

With the presence of several aggressive project advisors, re-presenting the borrowers, and a desire by many banks to demon-strate their "commitment" to Australia in the hope that this might tip the balance when the Government makes up its mind on which foreign hanks to allow in, the scene was set for some major advanres in the banks' perception of acceptable

project risk. Financings such as Woodside Petroleum, Oaky Creek, and CSR Delhi, broke new ground in regard to the acceptance of project risks by the hanks. The question some bankers are now asking themselves is did they

The recent history of project finance may have lulled some recent spate of Australian pro- banks into a sense of false ject financings to compare how security. Throughout the 1970s they described a potential pro-ject loan to a borrower and how a cushion for the substantial they described it to their own cost over-runs, delays and credit committees. It is likely problems which might otherwise have jeopardised the finof emphasis, especially in the ancing of many of the projects.

There are a number of areas in recent financings where the banks have gone further in accepting project risks than hitherto has been the case.

• Resource risk. Most banks require considerably more re-Proposed new U.S. tax legis-lation that would have limited they took project risks on their necessary to repay the project loan. Traditionally, lenders work on the basis of two times cover but the ratio has been

> traditionally shied away from accepting the risk that projects will not ha completed. However, several recent Australian financings bave involved the banks effectively taking this risk on their books. Completion guarantees by the project sponsors have been replaced by weak "completioo tests" and there Is little to prevent some horrowers from walking away from a project which runs into

difficulties.

• Marketing risks. These can be divided into price and volume risks and despite the existence of long-term sales contracts some recent Australian project financinga involve the hanks taking an increasing risk on

William Hall

irozentrale‡	50	1989	7	15 1	100	CSFB, Morgan Stanley	. 15-250	Life Co.**
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MAIN PARING	D-MARKS Norsk Hydro‡	100	1992	10	9	991		9.078
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Offer yield
7.290
7.250
7.375
7,500
6.875
7.250
6.625
11,000
10,250
10.000
8.700

This announcement appears as a matter of record only

Perpetual Trustee Company (Canberra) Limited as Trustee of



MANAGED BY

CSR LIMITED

Cooper Basin Petroleum Multicurrency Project Financing

US\$800,000,000

PRINCIPAL FACILITY

US\$50,000,000

US\$100,000,000 CONTINGENT FACILITY

STANDBY FACILITY

LEAD MANAGED BY

Bank of New South Wales Chase Manhattan Capital Markets Group Continental Illinois National Bank and Trust Company of Chicago

Canadian Imperial Bank Group Citicorp International Group National Westminster Bank Group

PROVIDED BY

Bank of New South Wales The Chase Manhattan Bank, N.A. Continental Illinois National Bank and Trust Company of Chicago

Bank of America NT & SA LBI Australia Limited Société Générale

Australia and New Zealand Banking Group Commonwealth Trading Bank of Australia Melion Bank, N.A.

The Chase Manhattan Bank, N.A.

Canadian Imperial Bank of Commerce Citibank, N.A. National Westminster Bank PLC

The Commercial Banking Company of Sydney Limited SFE Banking Corporation Limited Union Bank of Switzerland

Australian Industry Development Corporation The Hongkong and Shanghai Banking Corporation Sumitomo Bank Merchant Banking Group

AUSTRALIAN AGENT Bank of New South Wales



US \$75,000,000

The Development Bank of Singapore Limited

15% Notes Due August 12, 1989 75,000 Warrants to Purchase US \$75.000,000 143/00 Notes Due August 12, 1989

MORGAN GUARANTY LID BANK OF TOKYO INTERNATIONAL LUMITED BARING BROTHERS & CO., LIMITED CREDIT SUISSE FIRST BOSTON LIMITED MANUFACTURERS HANOVER LIMITED MORGAN STANLEY INTERNATIONAL STANDARD CHARTERED MERCHANT BANK ASIA UNITED OVERSEAS BANK LIMITED

DAIWA EUROPE LIMITED BANQUE NATIONALE DE PARIS COMMERZBANK ARTIENGESELLSCHAFT THE HONGKONG BANK GROUP. MERRILL LYNCH INTERNATIONAL & Co. Societe Générale de Banque S.A. SWISS BANK CORPORATION INTERNATIONAL S. G. WARBURG & Co. LTD.

ALGEMENE BANK NEDERLAND N.V. AMEO INTERNATIONAL LIMITED ACKROYD & SMITHERS PLC BANK OF AMERICA INTERNATIONAL LIMITED . BANK OF HELSINKI LTD. ARAB BANKING CORPORATION (ABC) BANQUE DE L'UNION EUROPÉENE BANQUE INDOSUEZ BANQUE BRUXELLES LAMBERT S.A. BAYERISCHE LANDESBANK GIROZENTRALE BANQUE NATIONALE DE PARIS (SOUTH EAST ASIA) LID. CHASE MANHATTAN CAPITAL MARKETS GROUP BERLINER HANDELS- UND FRANKFURTER BANK CHEMICAL BANK INTERNATIONAL GROUP CHRISTIANIA BANK OG KREDITKASSE CITICORP INTERNATIONAL GROUP CREDITANSTALT-BANKVEREIN CRÉDIT COMMERCIAL DE FRANCE COUNTY BANK LIMITED EUROPEAN BANKING COMPANY LIMITED Dresoner Bank DAY-ICHI KANGYO INTERNATIONAL LIMITED GENOSSENSCHAFTLICHE ZENTRALBANK AG FUJI INTERNATIONAL FINANCE LIMITED JARDINE FLEMING & COMPANY LTD. HAMBROS BANK LIMITED GOLDMAN SACHS INTERNATIONAL CORP. KLEINWORT, BENSON LIMITED KIDDER, PEABODY INTERNATIONAL LIMITED LTCB INTERNATIONAL LIMITED MITSUBISHI BANK (EUROPE) S.A. LLOYDS BANK INTERNATIONAL LIMITED Mobgan Grenfell & Co. Limited Morgan Guaranty Pacific Limited SAMUEL MONTAGU & Co. LINCTED Overseas Union Bank Limited Nomura International Limited THE NIKKO SECURITIES Co., (EUROPE) LTD. SALOMON BROTHERS INTERNATIONAL RABOBANK NEDERLAND PIERSON, HELDRING & PIERSON N.V. J. HENRY SCHRODER WAGG & CO. LIMITED SAUDI INTERNATIONAL BANK STRAUSS, TURNBULL & CO. Société Générale Skandinaviska Enskuda Banken

WOOD GUNDY LIMITED

August 12, 1982

THE TAIYO KOBE BANK (LUXEMBOURG) S.A.

All of these securities bace been sold. This announcement appears as a matter of record only.

Union Bank of Switzerland (Securities) Limited

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U.S. BONDS

Yield curve steepens sharply as rally gathers momentum

week "-Aubrey G. Langsion and Co.

fixed income markets bas been accompanied by unusually

stock and bond markets posted point a fortnight ago. sharp price improvements last week "-Salomos Brothers Inc.

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The credit market's enphoria would have been complete bad the Federal Reserve Board obliged and cut the discount rate as had been widely

short-term vields securely into

U.S. INTEREST RATES (%)

expected on Friday. As it is the markets bave that prospect still to look forward too.

With interest rates already dropping all the markets appeared to need was for the economic gurus to change their tune. On Tuesday Dr Henry Kanfman, the Salomon Brothers economist did just that revers-ing bis previously gloomy interest rate forecasts. The mar-

kets responded.
The yield curve steepened sharply to record differentials between short and long government bonds. By the end of the week the spread between threemonth bills and the treasury long bond extended to almost 4.8 percentage points com-pared to just over three points

The rush into bigher quality issues gained further momenium as the problems of the Mexican Government became clear and brought with them unfounded rumours that a major U.S. hank faced difficulties as a result. Investors bought treasury

"A BUYING PANIC engulfed bills aggressively and as a result the U.S. securities market last yields fell substantially. Desplie some disappointment on Friday because the Fed did not The frenetic activity in the cut the discount rate, the yield differential between three-month treasury bills and certi-

sharp declines in yields"—Smith ficates of deposit widened to Barney, Harris Upham and Co. shout 2.7 percentage points percentage points "A dramatic week. Both the compared with just over one Against this background the Fed funds rate dropped to

"The dramatic rally of the about \$5 per cent late in the past week has brought most week from an average of around week from an average of around 10.10 per cent in recent weeks. The Fed's accommodating the single-digit range and bond prices to their highest levels this year "—Chase Manhattan. The Fed's accommodating slance was pur down to a combination of continuing concern of the continuing continuing concern of the continuing nation of continuing concern of the weak domestic economy and the problems of some members of the U.S. financial community coupled with concern over the financial problems faced by many foreign countries.

The improvement in Treasury Bill prices which resulted in a drop in yields last week of between four-fifths of a point and two points, put the rally on a par with last autumn's bull market.

This means that within the past two months the rally has brought declines in yields of about two points in long issues and six points in money market

The raily was aided towards the end of the week by more good news. The passage of President Ronald Reagan's \$98.3bn tax bill helped pusb fears about the mushrooming Federal government deficit into the background, at least tempo-

The decline in M1—the hroad U.S. money supply measure—hy \$100m was pretty much as expected and leaves the money supply growth a comfortable \$1.3bn inside the Fed's targets. In the corporate hond market yield spreads between high

grade notes and medium quality corporate honds narrowed slightly last week reflecting (nvestors' desires to lock into the still relatively high current ahead as shelf registrations were brought into the market

and about \$2.3bn in new corporate issues were sold as the market responded dramatically to the sharp drop in yields.

Fokker confident despite sluggish first six months

New orders, bowever, are said to January and June. he in prospect and Fokker is results for 1982 as a whole.

alrlines for important new in interest charges, and this, to- overall result,

months of this year against the F27, turbo-prop airliners and in operating results. same period in 1981—from F28 jetliners. Ten F27s and two F1 5.84m to F1 6m (US\$2.2m). F28s were delivered between

cautiously optimistic about was F1 536m-an increase of atcd company, and a lower effecits half year figures, the com- deliveries of aircraft for which period were unfavourable but pany says that negotiations are company financing was later sees increased sales in the continuing with a number of than planned caused an increase second half and an improved

NET PROFIT at Fokker, the orders including fleet renewals. gether with the need to raise Dutch aerospace company, rose This year. Fokker has so far the provisions for potential deonly slightly in the first six booked orders for a total of 24 livery risks, caused a decrease

The first half net profit equalled last year's figure principally because of extraordinary Turnover for the first half dividend income from an affili-

Agreement expected on Dome debts

BY ROBERT GIBBENS IN MONTREAL

DOME PETROLEUM. Canadian energy company, says restructuring continue, but no agreement has yet been reached. lowever, oil industry analysts believe a deal is close, under

the ontstanding to Dome totalling in the market price of Dome says about CSL3bn (U.S.SL4bo) will shares, which closed on Friday talks with its bankers on debt accept Government-guaranteed at CS3.95. preferred stock in part payment. Speculation that an agree-

ment was near brought a week's which the four banks with loans gain of 50 cents or 14 per cent

the Government may guarantee CS1.3bn Dome issue of con- handling equipment businessvertible preferred stock.

the first half of 1982 had been Fl 32m, or 6 per cent, over the tive lax rate. Fokker says that "the lowest in over a decade In a statement accompanying same period in 1981. Delayed market conditions during the and was growing worse.

Reports in Calgary, the focal fown of the oil industry, claim

tural equipment plants for at least eight weeks of the fourth quarter. These divisions, which produce tractors and combine harvesters, represent about onethird of group sales.

The company also expe operating losses in its materialabout 11 per cent of sales:

Loss ahead Bell Canada rejects plea for inquiry

BY VICTOR MACKIE IN OTTAWA

BELL CANADA, the nation's largest supplier of telecommunifor a public inquiry before proceeding with a controversial reorganisation plan overwhelmingly approved this week by its shareholders.

The Montreal-based communi cations giant announced that it will seek approval from Quebec's Superior Court for its In fiscal 1981, Allis suffered plan despite a plea by the a pre-tax loss of \$90m and Wall Street analysts bave warned that this year's loss could exceed Federal Government's Restrictive Trade Practices Commission the 1981 deficit of \$2.86 a share. for a full public inquiry into the move. Allie said it will close down

The plan to establish a new, unregulated holding company production at all of its agriculcalled Bell Canada . Enterprises (BCE) which would control the Bell group of 80 companies, was approved by holders of 98.8 per cent of the 110.5m common shares.

A similar percentage of shares in five other series also supported the plan.

Mr Jean de Grandpre, chair-man of Bell, said the company cations equipment, will not wait has no intention of waiting for a Federal inquiry before imple. menting its vast reorganisation.

He has accused the Federal Government of continuous "harassment" of his company by Federal combines and trade investigators since 1986.

"We can't stall for 17 years without any action being taken. That's why we think it's time to act now." Mr de Grandpre said his company does not require approval of the Canadian Radio-Television and Telecommunications Commis. sion (CRTC) for its action.

On Friday, the Attorney-General of Canada, filed a motion in the Quebec Superior Court maintaining that the Court has no jurisdiction to approve the reorganisation until the plan has received prior approval by the CRTC. A court hearing has been set for next Monday.

Greyhound elects new chairman

elected Mr John W. Teets chair-man succeeding Mr Gerald H. Trautman who retires. Mr Teets. was a vice chairmao, will continue as chief executive officer. Mr Trautman will become

nonorary chairman. Mr Frank L. Nageotte has been named president succeeding Mr Raiph Batastini, who becomes a vice chairman and continues as chief financial officer. Mr. Nagectie, who was a vice chair man, will continue as chief operating officer.

Mr Maurice E. Culbane has been elected president of INLAND STEEL URBAN DEV-ELOPMENT CORP. (INSTUD). the shelter subsidiary of inland Steel Co. Mr Culhane is vicepresident, finance at INSTUD. Succeeding Mr Culhace will be Mr Rohert G. Smith, vice-president, finance at the Inland Steel Oevelopment Corp., one INSTUD'S four oper operation

. Mr Walter K. Herr has been Paul Taylor appointed deputy director of has been appointed to succeed government relations for COLT Mr Collins from October 1.

INDUSTRIES. Mr Herr joined Colt Industries in 1978 as a representative assigned to Washington, DC, office.

Mr Michael A. Perlino, vice-president. HARRIS BANK. Chicago, has been named manager of the bank's Singapore branch. Mr Perlino previously served in the bank's trading group in the lovestmeet depart-

• RAYMOND INTERNATIONAL INC has appointed Mr J. Hogh Roff, Jr. chairman president and chief executive officer of United Energy Resources, Inc. Houston and Mr W. Thomas York, chairman and chief executive officer of AMF Incorporated, White Plains, NY, directors.

Mr Jack B. St. Clair. a member of Raymond International's hoard of directors since 1979, has resigned. Mr St. Clair, who is also a director of Air Products wished to avoid any conflict in view of Air Products' recent acquisition of Stearos-Roger

• The NORWICH WINTER-THUR GROUP states that Mr C. L. Collins will relire as general manager of Norwich Winterthur t NZ1 nn September 30, Mr K. J. Sarginson, development manager,

INTERNATIONAL APPOINTMENTS

Mr. Peter E. McMenemy, mar-keting director Textile Fibres Ou Pont (UK), will become develop-Bank of Maryland where he keting director Textile Fibres Ou Pont (UK), will become develop-ment manager DU PONT DE NEMOURS INTERNATIONAL SA, on September 1 based in



ment manager. Du Pont de Nemonrs International, Geneva.

Geneva, Switzerland. He will be responsible for development of husiness opportunities for all Du Africa and Socialist States.

Mr Courtney C. Caldwell has been elected a vice president in the metropolitan banking divi- UNITED STATES, Mr Albert W. gramme. Mr Moore joined sion at AMERICAN SECURITY Nemenz, vice-president of Jno. Raymond International in 1980 BANK. Washington DC. Mr McCall Coal Co., Ballimore, and as a senior vice-president and

U.S. DOLLAR

U.S. OGILAR
STRAIGHTS
Asha Life 15 Se/31
Amar Int Fin 164 32
Amar 107 Fin 164 82
Anti 144 89
Esher Int 5in 0 0 92
Esher Int 5in 0 100

served as a senior vice president. banking officer at American

at Allis

Chalmers

ANOTHER "MAJOR loss" h

expected this year at Allis-

Chalmers, the Milwaukee-based

machinery manufacturer, chiefly

because of production shut-

downs at its agricultural equip-

ment plants. The company said

that industry-wide demand in

♠ Mr Max S. Bass, president and chief executive officer of M & T Chemicals Inc. has been elected a vice president of TEXASGULF INC. Both Texasgulf, head-quartered in Stamford, C.T. and M & T. headquartered in Wood-bridge, NJ, are wholly-owned subsidiaries of Societe Nationale Elf Aquitaine, Paris-based natural resources company. Mr Bass will continue in his present capacities at Woodbridge.

 AMERICAN MICROSYSTEMS, INC. (AMI) has appointed Mr William D. Baker as vice-president of manufacturing. He was vice-president of AMT's Pocatello. Idaho IC production facility. . Mr David J. Harrison, group

chief executive of BOWRING BURGESS MARSH AND NCLENNAN HOLDINGS. New Zealand, has been re-elected as president. Mr Mark R. Joseph, president

of the Anker Energy Corp., New York, has been elected chairman of the COAL EXPORTER'S ASSOCIATION OF THE UNITED STATES, Mr Albert W.

Mr. George. W. Tarleton, vice- a member of the board of direc-president marketing, Utah Inter- tors of Raymond International national Inc., San Francisco, have been elected vice-chairmen.

been elected senior vice-president exploration and production, of THE LOUISIANA LAND AND EXPLORATION COMPANY, a He will be based in New Orleans.

• Mr Kenneth J. Thygerson, bas been named president and chief executive officer of the FEDER-AL HOME LOAN MORTGAGE CORP. Mr Thygerson succeeds Mr Phillp R Brinkerhoff, presi-deot since 1977 of the Mortgage Corp., who has become president and chief operating officer of First Charter Financial Corp. and its subsidiary. American Savings and Loan Association of Beverley Hills, California.

Mr George J. Sella, Jr., president of American Cyanamid Company, has been unminated as a member of the board of direction appointed Miss Miriam. Range tors of THE PILLSBURY COM-

Mr Pat H. Moore has been elected senior vice-president of RAYMOND INTERNATIONAL INC. s new position with responsibility for developing a corporate-wide marketing pro-gramme. Mr Moore joined Raymond International in 1980

Builders Inc. 2 wholiy-owned

Mr H. Leighton Steward has . WHIRLPOOL CORPORATION has elected Mr Jack D. Sparks chairman of the board and chief executive officer from December 1. He replaces Mr John H. Platts who will continue to serve as a director and chairman of the board's finance committee

• CROCKER NATIONAL COR PORATION has elected Mr John B. Place chairman and chief executive officer, from September 1. He succeeds Mr Thomas R. Wilcox who retires.

· Mr Meredith O. Nelson will become a senior vice-president of KIMBERLY-CLARK CORP and president of the K-C News-print, Pulp and Forest Products Group to be established Octo ber 1.

appointed Miss Miriam. Range manager of its loan syndication department. Miss Raney was previously a vice-president in Morgan Guaranty Trust Company's private placement advi-sory and leasing department, based in New York.

. Mr Peter J. B. Duneau has been appointed managing director of SHELL (SWIZZER-LAND), Zurich

FT INTERNATIONAL BOND SERVICE

This announcement appears as a matter of record only 2nd August 1952

QHE SISTI FIERR- INGENERAL

Guaranteed by The Republic of India

US\$ 198,000,000

Finance for the purchase of three A-300 B4 aircraft and related spare parts from Airbus Industrie.

Lead Managed by

Lloyds Bank International Limited Bank of India Banque Paribas Deutsche Girnzentrale-Deutsche Kommunalbank Midland Bank ple

State Bank of India Banque Nationale de Paris CIBC Limited

US\$ 88,000,000

Eurocurrency Loan

Provided by

Lloyds Bank International Limited Patibas Finance Ltd. Midland Bank ple IBJ International Limited Societe Generale Bank Limited Banque Natinnale de Paris p. l.c. United Commercial Bank

Bank of India Canadian Imperial Bank Group State Bank of India Indosuez Finance (UK) Limited Bank of Baroda Crédit du Nord S.A.

US\$ 22,000,000

Sterling Buver Credit

Midland Bank plc IB] International Limited Canadian Imperial Bank Group Crédit du Nord S.A. Banque Indosue: State Bank of India Societé Générale Bank Limited Lloyds Bank Plc Banque Paribas (London)

US\$ 44,000,000

D.M. Buver Credit paranteed by the Federal

Deutsche Girocentrale-Deutsche Kommunalhank Hessische Landesbank Girozentrale Landesbank Rheinland-Pials Girozentrale Société Générale

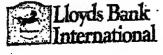
Bank of Tokyo (Deutschland) A.G. Industriekreditbank A.G. Lloyds Bank International Limited Kreditanstalt für Wiederaufban

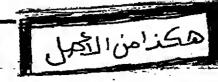
US\$ 44,000,000

F.F. Buyer Credit guaranteed by Compagnia Française d'Assurance pour le

Banque Française du . . Commerce Extérieur Banque Nationale de Paris Credit Luonnais Banque Indosuez Société Générale Citibank, N.A. Lloyds Bank International

State Bank of India





(France) Limited Crédit du Nord S.A. SVVISS FRANC
STRAIGHTS
Aur Canada 8's 92 100
Axian Oev Bank 7 92 100
Axian Oev Bank 7 92 100
Anizalsa 7's 92 90
Aristralia 6's 94 100
RNP 6's 92
Crewn Zellerbach 6's 92 100
Luroparat 7's 92 100
Luro SWISS FRANC

Bid Offer day week Yield 374, 384, 0 +04, 8.57 YEN STRAIGHTS EIB 8' 92 Int. Amer Gev. 8's 91 1011, 102's 0 +0's 8.80 Japan Airlines 14 87 . 9 96" P64 0 0 Now Zesland 5's 41 World Sank 8's 92 . Average price changes . On day 0 on week +0's

	barer int -in UU 34.	~~		TO T 12 10 10	ור נים מיהושם עיסות	12	332 1004	U +U	D.J
	EHP France 144 89 Ek. Amer NT SA 12 81	150	102' 102"	+3'3 +4'1 14,08	World Sank 5's 72 .		981, 994		2.3
	Ek. Amer NT SA 12 81	200	95 97	+0% +4% 12.85					
	Ri Montreal 141, 87	100	991 901	-01 +31, 18.64	Average price chang	PS . C	M day 0 on m	mek +O	4
1	Court land South 15 to		100 100	0 424 14 00					
1	Saus, Indo Suez 13 69	100	100 10012	0 +3% 14.89					
	Buttoh Col. Ryd 14% 63	200		+0% +4% 73.75			C	hange or	0
	Branch Cal Hyd 154 92		1051 1051	0 +31, 14.17	DIHER STRAIGHTS	terned	Bld Dies d	No passi	Y
1	Canada 141, 87	. 750	104% 105%	+02 +4% 12.88	Allien distribution		Bid Offer d 1997, 100% -	-/	
- 1	Canadau 154 87	150	1041 1054 -	+04 +3 13.51	Bell Carade 16 69 CS	100	7997 700	· 1/2 +71	15.0
	Canadian Par. 14's 32	75	991, 991	+01, +81, 14.67	Can. Par 5 164 39 CS	50	1991 100:	-D'. +D'	. 15.3
	Con Das the 42 Dh	75	967 991	0 +2% 15.21					
J	Can. Pac Enc. 15 29	. 75	967, 99%		Can. Utilities 17 87 CS		†1014 1014 ·		
1	Carolina Power 161, 89			-01, +01, 18.92	Gaz Metro. 174 90 CS	20	1981 99	0 +0%	17.5
- 4	ciac 16 87	100	100% 100%	+01 +17 15.71		63			
	Citicorp 11/3 15 84/92	100	101 1024	+04, +2 13.33	OKB 164 88 CS		1994 1004 -		
- 1	Cricorp 0/5 154 65/97		1031, 1037, -	+04 +24 13.99	Q. Hyd. 164 88 (M) CS	50	1997 100 -	· 04 0	16.50
3	CNA 157 87	75	1057, 1061	+0% +5% 14.7B	Quebec Prov. 161- 89 CS	50			
- }	Con. Ulingis 15% 89		977 975	+03 +14 16.38	U. 8k. Nwy. 912 90 EUA	18	547 547	05 0 0 +1	10 -
1	Ouks Pwr. 0/8 157 89		1021 1041 -	+02, +24, 14.50	Amro Benk 111 87 FI	150	394 994 4	-UF TW	10
1			1037 1047	0 +3% 13.66		76	DOS - 6001 -1	M TO	10.1
	ECSC 143 87 (April)		1031, 1031,		8k. Mees & H. 10 87 FI		393, 1004, 4	ייי דעי	10.0
-	EIB 157 88	750	1051, 106	0 +4% 14.04	Eurofima 10 89 F1	50	1013 7013 1	V4 TV1	W. 1.
- 1	EIB 15- 92	100		-04 +44 14.36	ITELEND TO'Z 87 PI	75	894 994 4	D. +0.	, 10.5
	Eksportlinens 141, 89	50	101% 102%	0 +2% 73.97	Iralend 101 ₂ 87 Fl Phil. Lamps 101 ₆ 87 Fl	100	1015 1024 4	·0. +0.	9.7
4	Gen. Elec. Credit 0.0 92	400	30% 31% 4	104 +24 13,13	WORLD DANK TO G/ FL	150	99% 99% + 94% 95% -	·0'4 +0'	10.1
	Gen. Elec. Credit 0.0 93	400	27 274 1	FO'S 72'S 13.00	OKB 14 86 FFr	400	944 954 -	0, +0	16.0
	Getty Oil Int. 14 88	125	1035 1045 -	+03 +4 13.06	Solvey et C. 144 88 FFr	200	944 954	0 -01	18.6
1	CMAC 0/5 19- 65/07	100	1071 1021	101, +4 13.06 101, +24 13.53	Beneficial 14% 90 £ (0)	20	944 954 944 954 + 1044 1064 +	14 +4	15.70
1	GMAC 0/S 151, 85/97 GMAC 0/S Fin. 15 89	125	102 1024	04 +3 18.18	8FCE 141 87 C	30	1041 1061	04. 431	12.00
	GMAC 0/3 FIR. 13 89	100	4001 4007 4	LOT 1 22 12 05	PND 121 Q1 F	15	DOI 1001 1	D. 13.	12.00
]	GMAC 0 S Fin. 15 87		103', 103', 4	104 +34 13.85	BNP 131, 91 C		99% 100% +	21 -41	13.41
1	Gnil Cunada Ltd 14% 92		102 - 102 - 4	104 +44 14.21	CECA 137 88 £	20	101's 102's +	VY TE	13.04
	Guli Oil 14% 94	175	105 1057 -	-04 +21, 13.81	Fin. Ex. Crad. 13 86 £		101% 102% +		
	Gulf O.1 Fr. 00 82	300	30% 31% +	+04 +24 13.12	Hirem Welker 18% 86 C	25	1031, 1041, +	0'1 +2"	12.67
1	New Brunswick 15% 87	76	1031, 1034 +	-0% +4 14.24	Norak Hydro. 141, 87 £	30	105 106 +	04 +37	12.88
1	New Brunswick 15% R9		105% 105% ~	-05 425 14.89	Povetbankon 14, 88 C	12	1001, 1011, +	0: +2	14.27
J	Nova Scotta Pr. 15's 89		991- 100	0 +31, 15.30	Quebec 151, 81 f	35	105% 106% +	0 +2	13.56
	Ontario Hydro 18% 89.	150	1041 1041 +	-O's +87, 13.64 .	Quebec 151, 81 f Quebec Prev. 141, 89 f		100% 107 ÷	01 +14	14.35
1	Pac Gas & El. 15, 89	45	1021, 103 +	DL +03 14.75	Reed (Nd] NV 16% 88 C	25	1017, 1087, 4	04 +21	14.60
1		200	1007, 1011	ML 431 13 00	Royal Trustee 14 86 E	12	1015 7025 +	01. +11	13.17
1	Philips Patrol 14 89	400	71: 721 4	04 +34 13.99 14 +0 12.70	SOR France 15's 82 C.	30	104 104	0 +1	14 57
1	R J Rynlds. 0/5 00 82	400	31" 32" T	OL +21 14 00	Swed Fr C. 131 00 0	20	103 104 +	14 +3	17.44
	Saskatchewan 16 89 .	125	1057 1057 1	03 +34 14.61	5wed. Ex. Cr. 135 86 C			N T51	41
•	Shall Canada 14 92	125	1014 1075 -	04 +34 14.07	Tenheco Int. 14% 37 E	30	100% 101%+	V 1 - Z	14.37
1	Spain 154 61	100	1051 106 +	13.94	Eurofima 104, 87 LuxFr	500		0 +0	
1	Superior 0/5 Fin. 18 59	125	100% 100% +	04 +25 13.87	E18 9% 88 Luxft	600	925 935	D =0.	17.49
4	Swed. Exp Cr 154 88	100	1034 1034 +	01 +37 14.33					
•	Swad. Exp. Cr. 14's 90	100	100% 100% +	O's +3" 14.52					
3	Swed. E40. Cr 0.0 94			0 . +04, 14.23	FLOATING RATE			_	
1	Texas Esstern 15% 89	50	103 . 1031	05 +24 14.91	NOTES 5p	read Bi	d Offer C.dt	e C.con	C.yld
1	Union Carbida 14% 89			04 +25 13.95	Alfied frish 5's 92		8', 99', 15/1		
1	Wells Erro let 15 94	75	103 1000 -	0", +2", 13.92	Ck at Tober 51 01 101	02. 20	No. 1011 0/4		
Į	Wells Fergo Int. 15 81			0, +4, 13.49	8k. of Tokyo 5% 91 (0)	0)	Q2 1014 8/1	Z 15%	15.10
1	World Bank 14% 81		TOET FORT	OL 401 15 ET	Bk. Nova Scotis 54 93	07	94 - 994 29/1	ורפו ט	15 20
1	World Real 15% 88 .	250	1004 1004 +	03 +01, 13.57	8FCE 5% 88	U'a 10	0 100% 28/1		14.94
Į	World Bank 15 81	250	104" 105" +	0% +3% 13.57	BFCE 54 87	OL 10	0', 100', 27/1	14	13.91
ľ	World Sank 15 55	150		0 +35 13.70	Calese Nat Tele. 54 90	0% 10	0 100, 21/1	0 15%	15,71
ł	Average price chang	res . Or	n day +04 or	week +3%	CCCE 54 2002	0'. 9	87, 994, 11/1	2 15%	15.53
1					. CEPME . 51, 92	0% 10	05 1015 10/1	2 15.44	15,30
1	DEUTSCHE MARK		Ch	SERVE OF	Chemical NY 54 94	101, 9	91, 1001, 23/9	16,69	18.67
	STRAIGHTS	seved	Bid Offer de	y week Yield	Cradit Agricula 5's 97	0. 9	9', 100', 24/9	15.64	15.44
1	Acien Dev Bank 94 32	150	97, 96,	0 -04 9.58	Credit du Nord 54 92	27, 10	04 1014 23/1	2 16.81	15.63
1	Australia 9's 81	200	105% 106 +	01, +1% 5.41	Cradit Lyonnais 54 97 .	0. 10	0 1001 1/1	0 18	15 96
ı	Austria 85 92	100	95' 95" -	O", +0", 9.05	Credit Lyannais 54 94	01. 10	0 1001, 1/1	16 94	16.50
,	Barriays D/S in 81 54	100	·96 · 961, ±	01 +07 8.89	Credit Nor. 54 94	in.	81 591 9/9	74.89	14 55
ı	Enterton ton Cin Cl. 00	60		0, +0, 9.28	Ireland 54 89/94	OL 19	6's 99's 25/1	1 141	
1	Fowerer Int. Fip. 53, 89	100	1017-1017-1	07 +17 9.74	Kanzalla Casks El es	M 440	0 3001 27	1 14 a	14,90
ı	Carsas Nat 1818 34 32		1011 1011 4	OL 401 P 14	Kenzelis Oseke 51, 92	U. 110	N 100' 6/1	1 15.31	15.27
•	Canada 62, 89			D's +04 8.11	Llayde Eurofin 54, 93	104 70	04 1001, 29/1		17.02
	Comp. Tel Esp 101 52	100		0 0 10,35	Long Term Cred. 54 92	U'a 10	0 1001, 29/1		14,59
	Cred Funcier 8's 52	100		04 +07 9.20	J. P. Morgen 54 87 !	0:4 8	91, 100 12/1	1 12.94	12 97
7	Denmark 10-2 92	100		O's -0'4 \$.90	Nat. West. Fin. 5% 31 8	OI. 10	14 1015 15/1	154	15.02
ſ	FDF 97 92			01, +01, 9.67	New Zealand 54 87	01, 10	04 100% 7.1		15.49
	F18 81 92	100		O" +1% 8.88	Nippon Credit 54, 90		0 1002, 10/2		13.84
ł	las Am Des Dis B 69		97' 98'	0 +04, 9.35	Offehore Mining 5% 91	na. 10	DE 101 2/4	2 14.19	14 00
ŀ	IntAm. Dev. Sk. 8 82		011 00	UP - 21 .43 36	Orbital Filling St 31	M 45			
1	Nacol Financiera 11 90		914 92 -	05 -31 12.78	PKbanken 5 91	O'4 10	1 1011, 17/1	2 15 81	15.62
,	North Hydro 81. 92 .	100		05 +05 8.71		0, 9			75.49
ı	Philos Camps 81, 92	100	5001 1011.				0 1001, 24/1		14,56
•	1 Philip Morne 54 30	100		04 -04 B.08			93, 99', 1/9		15.37
,	Ouebec 101, 82	150	102% 103% +		Standard Chart 5's 91		79, 100% 10/1	1 147	14.78
1	Annie 10 92	100	997 997	0 -04 10.05	Sweden 54 89	04, 9	991 26.8	15.21	15.39
1				O's +0's 9.25	Toronto Domin's 54 92	0: 4	8- 99'- 11/2	14 24	20 60
1	SNCF 8% 32	100					o-e 33'4 11/2	De .57	14100
ł	Tairmautobahn 7's 94.			0 +04 9 49	Average Orice change	ווט. בי	DAY OU ME	SK +D	
	Tanadan ini O Do	9000	GG GGL 4/	0% +0% 9.11					

	•					_
CONVERTIBLE	Cnv	Cny.			Chg	
40NDS	data	price	Birf	Offer	day	Prem
Appended 54 96	7/81	933	78	77:	+0%	7.9
Bow Velley Inv. 5 95			97		-0-	
Bridgestone Tire 51/2	26 3/82	470	83	841	÷0:,	
Canon 64 95	1/81	736.3	96		-0.	
Cenon 7 37	7/82	748.2	107	108	+0%	2.1
Chagai Pharm. 74 56			111	1134	-04	2.38
Fujitsu Fanuc 41, 96			725	744	+17	25.31
Furukawa Elec 54 96			88	894	+1-	- 5.40
Hitachi Gabia 5% 86			834	84%	+14	
Hitachi Crest. Con. 5			63	65	-0-	5.44
Honda Motor 51, 97			82'		+2%	
Kewsunki 54 96			5012		+0%	
Мети 5 96					÷2%	
Minofle Camers 5 96			607			33 S
Minarco 94 97			126			15.53
Murata 51 26			63			26, 12
NKK 64 98.			6722			- 22 .30
Nippon Electric 5% 97						8.84
Openi Finance 54 37			74		+0%	
Sanyo Electric 5 95.	70/87	652	62			15.80
Sumilomo Elec. 51, 97	3/62	977 3				16.50
Sumitama Mat. 54 96			541,			38.0
Swiss 8k Con. 84 90 Konishiroku 64 88 0			73		0	32.30
Mitaubishi H 6 89 D						15.42
ש בם ס א וקצופטבוואה	m €/4€	<03	92-1	40.5	_	34.60
						_

The Financial Times 11d, 1952 Reproduction in whole of in past in any form not permitted without writing EUROBOND TURNOVER (nominal value in 5m)

Cedel clear U.S. 5 bonds

+5,536.8 9,920.8

Previous week 7,340.1 9,861.3 Other bonds Last week.... 7718.3 806.8 Previous week

· Four working days only. No information availableprevious day's price.

† Only one market maker

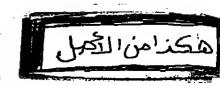
supplied a price. STRAIGHT BONDS: The yield is the yield to redemption of the mid-price: the amount issued is in millions of currency units except for Yen bonds where it is

in billions. Change nn week = Change over price a week carlier. FLOATING RATE NOTES: Denominated to dollars unless otherwise indicated. Compon shown is minimum. Cdfe=Date Bexi coupon becomes effective. Spread = Marzin above six-month nffered rate (t three month: S above mean rate) for U.S. dollars. C.cpn = The current coupon. C.; id = The current

CONVERTIBLE BONDS: De-nominated in dellars ucless otherwise indicated. Chg. day = Change on day. One date=First Cav price Nominal amount of bond per share expressed in currency of share at conversion rate fixed at issue. Prem = Percentage premium of the current effective price of acquiring shares via the bond over the most recent price of the shares.

The list shows the 200 latert international bonds for which an adequate secondary market exists. The prices over the past exists. The prices over the past week were supplied by. Kredielbank NV: Credit Commercial de France: Credit Lyonnais. Commerchank AG, Deutsche Bank AG: Westdeutsche Landesbank Girusentrale, Banque Generale du Luxembourg SA: Banque Internationale Luxembourg. Kredicthank Luxembourg. Alzemene Bank Nederland NV: Aigemene Bank Nederland NV: Pierson, Heidring and Pierson Credit Suese/Swiss Credit Bank: Union Bank of Switzerland; Akrayd and Smithers; Bank of Tokyo International Bankers Trust International Chase Manhattan; Citteorp International Bank; Credit Commercial de France (Securities) Lendon:
Daiwa Europe NV: Delirec
Securities (UK): ERC, First
Chicago: Goldman Sachs International Corporation: Hambros
Bank: IBJ International; Model Peabody International; Mornal Lynch: Mornan Stanley International: Nomura International; Orion Roya! Bank; Robert Fleming and Co. Semuel Mentagu and Co., Scandingvian Bank: Societe Generale Straus Turnbull Sumileme Finance International: S. G. Warburg and Co.: Werd Gundy.

Closing prices on August 20



Soul	vompanios and markets			JIED 510			HOLLAND	LIONG YONG
ects	1982 Aeg. Aeg.		High Low Stock Aug. 20 20 20 20 20 20 20 2	1882 High Low Stock 20	344 84 Sedao	453, 2514 Algeme Steel 941g	HOLLAND 1982 Aug, 90 Price Fig. 67.5 59 ACF Holding 72 91.7 90 Albeid 21.5 504 243.5 A6H 245.4 25.7 76.0 AMEV 85.5 504 243.5 A6H 57.6 204.5 150 Bredero Cort 150.5 70 55.5 Boskalls Wastm. 55.2 47.5 29 Buhrmann-Tet 22.6	1989 Aug. 20 Prica High Low High Low HK\$ 22,50 9.5 Choung Kong 11.1 1.70 2.2 Cross Harbour 5.0 5.70 4.67 HK Electrie 5.25 5.45 HK Kowloon Wh. 9.65 3.45 HK Shanghei Bk. 2.42 34.25 26 HK Shanghei Bk. 2.42 34.25 26 HK Telephone 28 12.50 10.7 Hutchisen Wya 12.20 3.5 HK Shanghei Bk. 2.42 34.25 26 HK Telephone 28 34.25 26 HK Telephone 28 34.25 26 HK Telephone 28 34.25
	971e 151s Advanced Micro. 24 477s 551e Aetha Life & Gar. 355e 147s 81e Aetha Life & Gar. 355e 147s 81e Ammerson IH.F.J 151s 157s 814 Air grod & Chem 157s 151e 151e Air grod & Air gro	15	34\(\) 24\(\) 44\(\) 48\(\) 69\(\) 91\(\) 48\(5814 4576 Morgan (1P) 6212 69 6012 Motorolo 3514 1165 Muraingwear 1156 1165 1516 Murhy Oil 1878 5678 2956 Mabisso Brands 55 2514 18 Malco Chem 1578 2213 1814 1978 Nat. Detroit 2213 2214 1914 Nat. Dist. Cham 2016 2214 1814 1814 Chem 2016 2215 1814 1814 Mat. Gypsum 2016 1214 Het. MedicalEnt 1616 2436 1314 Het. MedicalEnt 2516 225 1451 Semieduetr 1616 2436 1314 Het. Semieduetr 1616 2516 1515 1	51	257s 171e 8k Montres 191e 271e 30 8k Nova Scotia 251e 4.60 2.10 8asic Resources 2.10 205e 161e 161e	37 25.5 Caland Hidge 20.5	28
	273, 22 Alcoa 973, 46 393; Amal. 2uger 46 484 173, Amax 20 213, 241, 173, Amax 162, 213, 241, 164 Amarada Hess. 121, 163, Am. Arrilins 165, 44 365, Am. Brends 41, 255, 257, Am Can 983, 182, 111, Am. Elect. Powr. 177, 50 365, Am. Express 431, 452, 313, Am. Holst & Dis. 357, 358, Am. Holst & Dis. 357, 358, Am. Home Prod. 361, 261, 261, 261, 261, 261, 261, 261, 2	621s 195s Cooper Inds	9975 24 Holiday Inns	10-16 71-2	3514 9232 Sth. Oal. Edison 3514 3212 Sth. Nat. Res. 3473 466 4112 Sth. Nat. Res. 2473 466 4112 Sth. Nat. Res. 2473 4674 25712 2571	2814 2814 Can Packers	120.2 88.0 Oce Grinten 117 40.2 20.9 Immeren (Vani. 99.6 43.4 34.8 Pekhoed 36.7 30.5 20.3 Philips 24.9 38 21.1 Rijn-Sahelde 24 222.5 195 Robeco 202.5 125.6 118.2 Rodenco 124.5 217.5 188.0 Rollnoo 194 163.8 155.0 Rollnoo 159.8 94.3 71.8 Royal Outeh 85 92.3 71.8 Royal Outeh 74.5 238 176 19kyo Pao Hg 178 162.1 143 Unilever 152.5 140 22 Viking Res 94 54 38 VMF Stork 46 22.9 48 VNU West Urr Bank 71	949 761 Alinemoto
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	Big 378 Beker Inds 478 2312 18 Bail & Howell 2012 1814 1379 Bell industries 1472 1473 Bell industries 1472 1473 Beneficial 20 20 20 20 20 20 20 2	247s 181s Enserch 227s 247s 1614 Enserch 157s 301a 181s Ethyl 945s 175s 3 Evans Prod 91s 295s 1814 Ex Cell D 955q 275s 231s EMC 971s 215s 1234 Faberge 1814 414 3 Fedders 1814 2514 191s Federal Mogul 20 20 20 20 20 215s 231s Federal 1814 2514 191s Federal Mogul 20	314	264 1812 Petrie Stores	22 137a Trans World 1914 98a 6 Tricontrol 64 907a 178a Tricontrol 184a 15 97a Tricontrol 1244 231a 1244 Tryler 144a 215a 1514 UAL 181a	91s 81s Ranger Dil	High Low Aust. 5	739 610 Hippon Gakid 511 412 331 Nippon Meet 553 1,130 905 Hippon Dil 529 633 Hippon Salmpan 182 126 Hippon Sulsan 235 4,600 2 206 Nippon Sulsan 235 4,600 2 206 Hippon Yusen 219 266 710 Hissen Motor 219 266 710 Hissen Motor 220 358 320 Hissen Flour 321 170 139 Higshin Flour 321 170 139 Higshin Flour 321 1,140 733 Olympus 391 1,140 733 Olympus 391 1,140 735 Olympus 1,250 1,840 1,310 Pienser 1,350 1,840 1,310 Pienser 1,350 1,840 443 Rigoon 535
	2015 8218 Bristol-Myers	283a 18 Fed. Paper Srd. 214 17s 58 Fed. Resources. 034 4434 235a Fed. Dep. 5tores, 415a 247s 1778 Fisledrest Mi 1934 13 97s Firestone	29 . 24 Leaseway Trans 28 29 24 Leaseway Trans 28 3954 3152 Leonox	2014 Poteston 2514 Poteston 2514 Prontice Hall	3578 2214 Union Dil Cal	30°8 22 Toronto Dom Bk. 27°s 18°s Trans Can Pips. 18°s 10°s 5°s Trons Mntn, DilA. 7°s 22°s 14°s Walker(H) Res. 19°s 14°s 11°s Westons Trans 13°s 37°s 27° Weston (God 50°s	1,44 1,00 El'ville Coopor 1,34 2,560 1,86 8rambles inds 1,88 4,55 2,19 8ridge Oil 2,46 10,48 6,50 0,10 8runswick Dil 0,16 3,35 2,40 CRA 2,55 2,50 1,70 Cartion & Utd 1,90 3,90 3,27 CastiemsIneTys 3,60 0,71 0,35 Gluff Oil (Aust) 0,36 0,10 1,37 (B Cockburn Cemt. 1,27 2,50 1,94 Comalco 1,27 2,50 1,94 Comalco 1,93 8,00 1,50 Costein 1,93 1,93 8,00 1,50 Costein 1,44	316 354/Sanyo Elact
	477 ₆ 335 ₉ G88 34 388 ₈ 227 ₉ CPC Intl 34 591 ₈ 257 ₈ CPC Intl 407 ₈ 407 ₈ 161 ₄ 75 ₄ Campbell Red L 141 ₈ 28 281 ₈ Campbell Soupa 351 ₄ 347 ₈ 197 ₈ Campbell Tagg 347 ₄ 40 245 ₈ Cana Randolph 371 ₂ 35 191 ₈ Can Pacific 255 ₄ 291 ₂ 187 ₃ Carlista Corp 29 331 ₄ 265 ₉ Carnation 29 331 ₄ 265 ₉ Carnation 301 ₉ 451 ₄ 105 ₉ Carter Hawley 121 ₄ 444 343 Carter Hawley 391 ₈	216a 215a 1st Nat. Boston 25 314 314 314 314 315 314 315 314 315	231 ₂ 147 ₃ Lubrizol 16 151 ₅ 121 ₄ Ma Com. 100 13 571 ₄ 363 ₅ MCA 531 ₄ 192 ₅ 117 ₂ MacMillar 131 ₄ 381 ₈ 96 Mag. 37 353 ₆ 283 ₈ Mfgrs Henover 291 ₈ 15 7 ₁₆ Manwille Corp. 8 357 ₆ 211 ₄ Mappen 235 ₆	2016 2018 Raytheon 5976 1018 1058 10412 1058 10	431e 317g Utd. Technolgs 431g 2114 1914 Utd. Telecomms 1855 1856 384e Ujotan 4134 531g 531g 57 VF 5334 1214 78g Varian Assos 391g 1214 78g Varian Assos 391g 1214 78g Varian Assos 391g 81g 1214 111g Virginia EP 414 40 40 40 40 40 40 4	GERMANY 1282 Aug. 90 Price Bm 46.9 23 AEC-Telef	1.06 0.88 Ounlep 1.00 4.40 2.49 Eldar 9mith CM 2.63 4.40 0.14 Endeavour Res 0.19 1.45 Gen Prop Trust 1.48 6.90 1.75 Hartogen Energy 1.93 1.95 0.97 Hooker 0.89 1.90 1.39 (C) Aust 1.39 1.20 0.50 0.10 Jimb lana 50cFP 0.15 1.80 1.35 Jones (D) 1.40 0.44 0.10 Lennard Dif 0.13 0.44 0.10 Lennard Dif 0.13 0.34 0.15 Meridian Oil 0.18 0.18 0.17 0.94 Menarch Pet 0.10 0.18 0.18 0.19 0.19 0.19 0.19 0.18 0.19	9751 725fTelkoku Oll
	351 2712 Contest 2812 2812 3914 1756 Centox 2414 1658 1254 Central & Sw. 1618 1254 1254 1254 1254 1254 1254 1254 1254	371g 297g Gannet 571g 175g 175g	401s 311s Merriett	345g 271s Rite Aid	2814 2414 Waste Mangt	139 110.5 BA5F	1,60 1,23 Myer Emp	319 211/Yasude Fire
2 4 5 7 7 7 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	83g 33g Chrysler 693g 471g 993g Chubb 693g 543g 693g Chubb 693g 267g 1934 Cincinnati Mu 913g 891g 231g Citteorp 261g 56' 243g Citteorp 261g 56' 184g Citteorp 171g 59 184g Citter Equipment 911g 59 184g Cieve Citfe Iron 171g 15 105g Cieve Aller 117 g 16 17 17 17 17 17 17 17 17 17 17 17 17 17	3814 207s Genuine Parts. 3444 201s 153s Deorgie Pac. 177s 301s 1925 Gerber Prod. 201s 3414 414e Getty Dil. 4914 297s 123s Diddings Lewis. 40 3034 Gillette. 83s 25 78s Global Marine. 83s 25 1934 Goodrich 18F) 1814 2554 181s Doodyear Tire 931g 457s 2834 Grace. 381g 457s 2834 Grace. 381g	1514 McDormott (JR1. 1554 77 59 McDormott (JR1. 1554 77 59 McDormott (JR1. 1554 77 59 McDormott (JR1. 1554 77 McDormott (JR1. 1554 77 McDormott (JR1. 1554 75 McGrew Hill 504 1758 McGrew Hill 504 1568 338 McGrew Hill 504 1568 308 McGrew Hill 504 1568	4256 341s Rubbermald	343, 231s Whiripool	187.5 115 Droadnar Bank. 124.0 1213 179 DHH	0.37 0.12 3parges Expl	46 24.3 Buffels
	NEW YORK —DOW JOH Aug. Aug. Aug Aug 17 19 20 19 18 17 19 Al industr'h; 809,29 858,87 829,43-851,94 792, H'me Binds. 62,51 92,94 82,12 51,36 89,	MES 1482 Sinca Cmpil't'n 1.0 Migh Low High Low 43.783.05 882.52 778.92 1851.70 41.22	Aug. Aug. 16 18 18 19 19 18 18 19 19 18 19 19 18 19 19 19 19 19 19 19 19 19 19 19 19 19	1.7 450.8 385.3 [4/1] 446.2 (8/7)	AUSTRIA 1982 Aug. 20 Price 8 222 207 Credit stait Pfd 210 Laenderbank Pfd 180 301 259 Perimposer 63 108 63 Somgorit 65 178 140 Steyr Daimler 140 210 135 Uertacher Meg 180	197 149 MAN	1.58 1.59 90ustead Bhd. 1.58 1.59 1.58 1.59 1.58	3.15 2.0 Sage Hidgs 2.45 5.15 3.76 Sa Braws 19.25 22 15 Tiger Dats 19.25 9.5 5.5 Tongsat Huletts 7.23 4 2.93 Unisec 3.4 Financial Rand U.S.\$0.76 (Discount of 111%) BRAZIL 1982 Aug. 20 Price Cruz
50 50 50 50 50 50 50 50 50 50 50 50 50 5	Transport 624.04 314.82, 313.02 314.32 299.	51 265.49 563.46 232.12 447.58 12.52 [12.61] 85 168.51 118.65 105.22 165.32 10.5 [17.65] [7/5] 150/7 (2 8/4/68) 28/4/42]	8ELGIUM Balgian SE 81/19/85) 85.14 u1 94 DEMMARK Copenhageo SE 11/1/75) 118.58 118.78 112 FRANCE CAG General (61/12/81) 88.8 98.8 9 Ind Tendance (61/12/81) 110.5 118.0 11 GERMANY FAZ-Aktion (61/12/81) 918.91 218.18 917	6.1 .84.2 111.8 (19/6) 53.8 112/8 1.4 152.1, 124.8 (12/6) 97.7 [4/1] 1.22 214.88 2289.48 (8/4) 214.82 (17/8)	1982 Aug. 20 Price Frs. 1,700 1,010 ARBED 1,042 4,100 2,150 1,250 EBES 1,770 1,250 EBES 1,770 1,550 EBES 1,770 4,740 3,240 Electrobal 2,630 2,950 2,000 Fabrique Nat 2,630 2,6	FRANCE 1982 Aug. 20 Price High Low Frn.	1982 Aug. 50 Price	1,95 1,52 Acestra 1,73 17,80 9,45 Banoo Brael 14,80 5,70 3.0 Seige, Min. 3.0 8,15 5,35 Brahma PP 7,10 8,85 5,50 Logas Amer. 7,12 3,20 2,00 Mannesmenn DP 2,50 19,55 9.5 Petrobras 99 11,50 12,05 6,31 2ouza Cruz 11,10 15,0 4,95 Unip 9E 9,00 18,00 7,5 Vale Rio Doce 13,10 TEL AVIV Prices Change Company Aug 13 on the
en e	Aug. Aug. Aug. Aug. Aug. Aug. 12 12 12 12 12 12 12 12 12 12 12 12 12	6 13 High Low High Lew 1.74 115,52; 157,28 114,58 169,38 5.52 1.62 165,55 122,74 112/6; (22/11/80/60/8/52 1.62 165,55 122,74 102,42 144,52 4,407) 1.611; 102,42 144,52 4,407 1.611; 102,42 144,52 4,407 1.624; 149,4 Year ago (approx 6.22 6.08 4.65 7.14 7.40 9.53	Cemmerzbank(Dec1868) 000,1 858,7 865 HDLLAND AHP-CBS General (1978) 85.8 65.1 85 ANP CBS Indust (1976) 87.4 57.2 67 HDNC KDNG Hane Seng Bank (51/7/24 1054.68 1225,96 1041 ITALY Banca Cemm Ital_(1972) 175.85 178.01 165 JAPAH** Dew Average (19/6/48) 5888,48,8967,736890 Tekyo Hew SE (41/28) 518,11 578.54 518.	,2 84.6 86.2 [18/6] 84.6 (6/1) .4 98.9 74.8 [18/6] 85.2 [411] .03, 978.69 1448.62 [12/7] 957.83 (18/6]	1,720	2,000 1,635 Emprunt 4,2,1975,1,780 7,110 5,490 Emprunt 3 2,1975,110 3,227; 2,670 CNE 3 3, 5,312 612 439 Air Liquide 485 167.8; 25 Acquitains 29,7 178.6; 116 Air Printemps 137 550 380 BiC 450 640 1,210 502 Bouygues 640 1,503 1,180 8BM Gervals 1,310 1,732 1,350 Carrefour 1,425 8,35 465 Club Mediter 502 690 506 GFAD 507 609 506 GFAD 507 139,3 127 CFS (Thomson) 139,3 1250 137 Cie Bancaire 174 229	217 120 Fagersta 159 171 91 Fortle (Free) 171 165 98 Mooeh Dom 100 141 121.2a2b 5kenie 157 241 167 2andvik 8 (Free) 157 520 440 2kandla 227 164 108.2kF 2 108 354 255.3t Keppsrberg 958 137 2b Syen Handelsbn, 108 125 100 Swedish Metch 112 164 129 Volvo 8 (Free) 162 SWITZERLAND	1982 1982
77 77 77 77 77 77 77 77 77 77 77 77 77	Aug Aug Aug Aug Aug Low 20 19 16 17 High Low 54,8552,57,82,3262,41 71,20 58,80 (4/1) 12/6)	13,11 13,04 13,67	NORWAY Oalo SE [1/1/2] 115.43 118.28 115. SHGAPORE Straits Times (1668) 506.29 537.30 502 SOUTH AFRICA Gold (1856) Industrial (1869) SPAIN Madrid SE (89/12/81) 48.24 90.59 83.	.14 114.45 120.59 (25/1) 109.12 [1/4] .16 581.65 910.76 (8/1) 857.07 (16/8) .5 484.1 869.5 (5/1) 255.5 (8/7) .711.7 (8/1) 807.5 (25/6)	2,970 1,516 Viellie Mont 2,970 DENMARK 1982 Aug. 20 Price X 129 113.2 Andelsbanken 117 420 300 Baltica Skand 553.4 Coptiandalabank 125.5	134.2 108 Coffmeg 118.2 75 149.6 Cryusot Loire 75 94 1. 49.6 Cryusot Loire 75 92.7 153 35,1 IDNEL 1110 438 956 42.2 [metal 1218 L.	1282 Aug. 20 Price Frs. 975 380 Ausulisse 403 1.150 815 Brown Boverl 860 1.345 1.165 Cibs-0elgy 1,240 1.050 210 do. Part Cerbs. 1,620 9.310 1,540 Credit 2uisse 1,620 2.375 9,190 Elektrowatt 2,226 520 380 Fisher (Geo) 380 5 233 6 373 Hoff-Roche Pt Cts 67,600	Israel Land Davimpt. Br. 2,440 +310 Property and Zuilding 2,530 +380 Property and Zuilding 1,791 +321 Investment Companies 2 ask Loumi Investment 1,070 +190 +393 Oiscount Investment 1,810 +338 Commercial and Industrial Osad Ses Werks 2,880 +250 +270 +170
100 100 100 100 100 100 100 100 100 100	Aug. Aug. Aug. Aug. Aug. Aug. Aug. Aug.	86 266.16 552.79 [4.1] 249.88 (21/8) 71 247.74 518.88 [4.1] 237.27 (21/8) 1.8 1455.2 1956.3 (4.1] 1552.2 (1/7) TIVE STOCKS Stocks Closing on 1raded price day Extend 1.201.700 27% + % Citicorp 1.140.600 25% + 2% Consequent 1.208.800 47% + 2%	500. NYSE All Common—50; Standard at	2 257.8 \$53.1 (11/1) 257.5 17/81 8 123.1 147;2 4/1) 116.4 (15/8) Dow 6954.37. TSE 515.97. agt Australia All Ordinary and Matals—and Peors—10: and Toronto—1,000; the	370.6 306 D. Bukkerfab	1,193 Matra	1,300 640:Landis & Gyr	"Ata" Textils "C"
	- Pac. Gas. Floct 1.614,700 27 +17s	4 441 200 741 4-7	jast earmed besed on 1975. T Excludin industrials plus 40 Utilities, 40 Finant u Unevellable.	giels mad an irmansports. c Glosed	1			A STATE OF THE STA

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Another dealer suggested that it the moment was not a red light from the lt is true that interest rates authorities, but more a delicate were already moving down, with shade of amher. There was little doubt however that in lending money to the discount bouses following the cut in the U.S. for seven days at a rate a per cent above base rates the Bank cent above base rates the Bank but it was Dr Kaufmano who of England was giving some sort seemed to supply the catalyst

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looked to be approaching before again the familiar sight of a the end of August, but this was stand off between the Bank of clearly not a sustainable trend. England and the discount houses

following the cut in the U.S. Federal Reserve discount rate, f restraining signal.

The way the markets io New action on both sides of the

BANK OF EN	GLAND	TREASUR	Y BILL TE	NDER
· A	ug 20 Aug.	18 .	Aug. 20	. Aug 13
Bills on offer; £1 Total of applications £49		rate of d	ited Ilscount —	10.7294%
Total ellocated £1 Minimum accepted bld £9	.00m · £100	m rate of d Average.yi 3217 Amount on	ald 10.23%	10.7110%
Allotment at		at next to	ender. £100m	£100m

FT LONDON INTERBANK FIXING

	i. dollars
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5 months U.8	dollars

ter Bank, Bank of Tokyo,

"THAT'S A long time in this market," commented a sector Henry Kaufmann of Salomon relieve money market shortiges.

Henry Kaufmann of Salomon relieve money market shortiges.

Henry Kaufmann of Salomon relieve money market shortiges.

Brothers — the maco largely Worried about the heady market in the afternoon came bouses when asked his thoughts responsible for the amazing ket sectiment the authorities from the books.

on the possibility of bank base chaoge io seotiment in the refused to cut its dealing rates rates falling into single figures equity markets—is far less after the fall in base rates, but by late October. The Bank of fallible than most other economic the houses now looking for furably resigned to a rather more Eogland obviously was of simiforecasters, herause the equity
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WEEKLY CHANGE IN WORLD INTEREST RATES

	Aug. 20	change		Aug. 20	change
LONDON Base rates 7 day interbank 5 mth Interbank Treasury Sill Tender Band 1 Bills Band 8 Bills	11 1178 102-1073 9.9894 1114	-0,7218	Federal funds 3 mth Treasury Sills 6 Mth. Treasury Sills 3 Mth. CD	114 5 4 - 9 5 72 8 32 9 70	-1:a -2:48 -1:93 -1:3
Band 3 Sills 3 Mth. Treasury Bills	101g 101g-104 101g- 101g-10 _g	- 14 - 25 - 36	One Mth. Interbank Three month	9.0 6.70 8,60	Unch d -0.60 -0.725
TOKYO One month Bills Three month Bills	7.40628 7.84378	Uneb' d		1414 14.2 14.2	Unch d Unch d Unch d
BRUSSELS Dne month Three month	13.4 13.5	iş	MILAN - Dne month Three month	19.; 19.;	Unch'd Unch'd
AMSTERDAM One month	5% 9%		Duslin One menth Three month	17% 17%	_t

London—band 1 bills mature in up to 14 days, bend 2 bills 15 to 33 days, and band 3 bills 34 to 63 days. Rates quoted represent 9enk of England buying or selling rates with the money market. In other centres rates are generally deposit

LONDON MONEY RATES

Aug. 20 1982	Sterling Certificate of deposit		Local Authority deposits	Local Auth. negotiable bonds	House			Treasury Sills o	Bank Bank Bills &	Trada Silia #
Overnight	11/2 11/2 10/2 10/2 10/2 10/2 10/2 10/2 10/2 10/2 10/2 10/2	11½-16 	113,.16 114.1136 114.1136 111.1136 11 1032 1032 1013 11	11½-11¼ 11¼-11 10½-10¾ 8¾-8½ 10½-10¼ 10½-10¼	11 34 10 it 10 it 10 it 10 it 10 it 10 it 10 it	1134-16 	10·12·11·14 11·11·12 10·54 10·14	1 = 1	107: 107: 1012 1013-1037 67:-654	111/2 111/2 10/4 10/4

ECGO Fixed Rera Starling Export Finance. Scheme IV Averaged Reference Rate for Invastment certod 18 July to 3 August 1982 (inclusive): 12.143 per cent.

Local authorities and finance houses seven days' notice, others deven days fixed Long-term local suithority mortgade reras, nominally three years 11½ per cent; four years 11½ per cent. \$Bank bill retas in table are buying rates for prime paper. Buying rates for four month bank bills \$35 per cent; tour months trade bills \$105 per cent.

Acordximate selling rate for one month Treasury bills 104-105 per cent; two months 105-105 per cent and three months \$5-10 per cent. Approximate selling rate for one month bank bills 105 per cent; two months 105 per cent and three months 10 per cent; one month trade bills 11 per cent; two months 105 per cent trace months 105 per cent.

Finance Houses Base Retas (oublished by the Finance Houses Association) 13 per cent from August 1, 1932. London and Scotish Clearing Bank Deposit Rates for landing 11 per cent London Clearing Bank Deposit Rates for sums at seven deys notice 8 per cent, Tressury Bills; Average tender rates of discount 9,9834 per cent, Certificates of Tax Deposit (Series S) 11 per cent from August 19. Osposite withdrawn for cash 9 per cent.

EURO-CURRENCY INTEREST RATES (Market closing rates)

Aug. 20	Starting	u.S, Daller	Canadian Dollar	Dutch Guilder	Swise Franc	D-merk	French Franc)tellan Lira	Gonv.	renc Fin.	Yen	Danish Krone
Short term	111 ₇ -113 ₄ 113 ₆ 115 ₂ 111 ₅ -115 ₄ 105 ₆ -103 ₄ 105 ₆ -103 ₄ 107 ₇ -107 ₈	8.814 814.913 915 Bir 1019-1035 1114 1136 1114-1213	144-1514 1415-151: 1454-1454; 14-1414 1415-1456; 1412-1451.	8.7.8% 8.4.8% 51.8% 84.8% 85.8%	1.119 1-11; 319.314 4.412 434.414 413.414	814 812 84 84 84 84 84 84 84 84 84 84 812 85	1412-1612 1412-1612 1312-1612 13-19 13-19-1 18-1-19-1 16-4-80-1	18-20 19; 2-21; 20-21 197a-2052 2014-21 2014-21:4	15-14 13-14 1314-14 1314-14 1314-14	131:14 132:1351 133:1351 134:1351 131:1351 131:1354	614-712 712-724 7-5-714 7-6-712 712-7-2 7-12-7-2	12%-14% 12%-13% 13%-15 15%-16% 16-17%

SOR linked deposits: one month 10-10% per cent; three months 10½-10% per cent; six months 10½-11½ per cent; one year 11½-11½ per cent.

ECU linked deposits: one month 11¾-12½ per cent; three months 11½-12½ per cent; six months 11¾-12½ per cent; one year 12½-12½ per cent.

Asian S (close rates in Singepore; one month 9½-10½ per cent; three months 10½-10½ per cent; six months 11½-11½ per cent; one year 12½-12½ per cent.

Long-term Eurodoller; two years 13¼-13½ per cent; three years 13½-13½ per cent; lour years 13½-13½ per cent; three months 10.10-10.20 per cent; ex months 10.75-10.85 per cent; ene year 11.40-11.50 per cent; ex months 10.75-10.85 per cent; ene year 11.40-11.50 per cent;

CURRENCIES AND GOLD

Dollar very weak

The dollar fell sharply last oo Bank of England figures, fell week in reaction to lower U.S. to 120.2 from 122.4 during the ioterest rates. The trend begao week, and in terms of major on the previous Friday when the currencles the U.S. unit weakened Federal Reserve cut its discount in DM 2.4530 from DM 2.5075 rate, but this was oot followed through on Mooday in the foreign exchange market. A frame FFr 6.99 against the French foreign exchange market. A frame FFr 6.99 against the French frame from FFr 6.99 against the French frame from 19.94 from 19.95 despite the lowerth frame frame from 19.95 despite the lowerth frame frame from 19.95 despite the lowerth frame frame frame frame from 19.95 despite from

and on Tuesday and Wednesday Cootinental rates are also set lost more than another point, in fall. The pound rose in bringing the dollar numbling DM 42725 from DM 427 and

term bond yields, and although Euroduliar rates did turn up slightly by the eod of the week the dollar continued to slide.

Three-month Eurodollars finished on Friday at 10; per cent compared with 127 per cent at the eod of the previous week. and 101 per ceot nn Wednesday. The dollar's trade-weighted iodex.

Eurodollar rates fell by abnut

1 percentage point on Monday,
and on Tuesday and Wednesday
lost more than another point,

Trend in interest rates, as the
pound benefitted from the move
out of the dollar, and fears that
cootinental rates are also set
to fall. The pound rose to

down in their wake.

Dr Henry Kaufman of but fell to SwFr 3.61 from Salomon Brothers gave interest swFr 3.65 and to Y444 from rates and the dollar s sharp downward push as a result of his predictions of lower lung the support from bond yields and although of higher Furn Franch france. larly weak, requiring the support of higher Euro French fraoc interest rates, to contrast to the general trend. Rumours of with-drawal from the European

Mnnetary System were behind the franc's decline. Gold ceme back into favour. ss U.S. interest rates and the dollar fell. It mec \$45; nn the week tn \$383;-384;

THE	DOLLAR	SPOT	AND	FORWARD

Aug 20	apread	Close	One month	p.4.	months	p. a.
UKT	1,7380-1,7600	1.7405-1.7415	0.22-0.12c pm		0.18-0.08 pm	
Irelandt	1,3990-1,4050	1,4025-1,4045	0.50-0.20c pm	7.27	2,35-2.20 pm	
Canada	1.2350-1.2370	1.2360-1.2370	0.50-0.55c dis	-5,09	1.14-1.21dis	-3,80
Nethind.	2.6950-2.7020	2,6965-2,5985	0 32-0.22c pm	1.20	1.14-1.04 pm	
Belgrum	47.03-47.17	47.13-47.15	14-18c dis	-3,82	34-39 dia	-3.10
Denmark		B.5476-8.5576	11-12-01a dis	- 2,28	5.65-6.15dls	-2.76
W. Ger.	2,4400-2,4590	2.452E-2,4535	0 50-0.25pt pm	1,34	1.21-1.15 pm	1,53
Portugal	84,70-88.00	85.75-86,00	75-1750 dis	-17.47	150-450dis -	- 13.97
Spain	110,60-110,95	110,60-110,70	65-75c dia	-7.59	190-215 dls	-7.41
Itale	1,379-1,3853	1,384:-1,3851;	12-13lim dia	-10.83	32-34 dia	-3.53
VEWICH	6,6200-6,6440	5.6200-6.6300	1,70-2.10ora dis	-3,43	6.80-7.20dls	-4.21
France	6.8450-6.8800	6.8475-6.8525	4-41c dis	-7.65	141-10 dis	-B.88
Sweden	9.1000-5,1140	9.1000-5.1100	2.28-2.40ora dis	-4,52	5.20-6.40dis	-3.47
Japan	254.50-258.25	254.70-254.80	0,65-0.57y pm		1.95-1.55 pm	2.98
	7.224-17.264	17.25-17.28	33-2970 pm	1.82	84-34 pm	1.56
Switz.	2.0670-2.0840	2.0725-2.0736	1.15-1.06c pm	5.48	3.28-3,20 pm	5.25

Belgien rate is for converable trancs. Financial franc 49.85-49 35. THE POUND SPOT AND FORWARD

Aug 20 ·	Day's	Close	One month:	• <u>4</u> p.a.	Three months	;; ;;.8.
U.S.	1,7380-1,7500	1.7405-1.7415	0,22-0.12c pm	1.17	0.18-0,08 pm	0.30
Canada	2.1500-2.1600	2.1525-2.1535	0.68-0.78c dia	-4.07	1.85-1.96d/s	-3.53
NethInd.	4.65-4.72	4.69-4.707	14-40 pm	2.55	21-2 pm	1.91
Balgium	81.90-82.30	82.00-82.10	17-27c dls	-3.22		-2.88
Denmark	14.89-14.96	14.89-14.91	1-17-ore dis		8-9's dis	-2.4
reland	1.2400-1.2478	1.2405-1.2415	0.57-0.72p dis		1.87-2.06dle	-6.3
W. Ger.	4.20-4.23	4.264-4.273	14-tet pm .		23-24 pm	2.2
Portugal	149.00-150.00	149.25-149,75	110-295c dis			-13.7
Spain	192.50-193.75	192.50-192.75	100-1250 dis			-7.76
taly	2.406-2.417	2.410-2.412	18-21lire dia			-9.54
Norway	11.53-11.59	11,537-11.667	11-2'rors dis			-3.W
France	11.92-12.02	11.52-11.53	5-8c dia			-7.BE
Swaden	10.621-10.6812		21-34ore die	-3.52		-3.05
le oan	442-447	4431, 4441,	1.55-1.35y pm	3.92	3.65-3.45 pm	3.20
Austria	30.00-30.20	30.00-30.05	81-5gro pm		17-11 pm	1.90
Switz.	3.60-3.64	3.6012-3.6117	23-21 c pm		6.5% pm	€.85

FORWARD RATES AGAINST STERLING 1.7397 4.24875 12.15 3.95 440,45 1.7450 4.2295 12.44 3.511 437.17 1.7393 4.26355 11.99 3.58625 442.55

GOLD MARKETS

Close Opening - Morning f Afternoon		38434 IE 383 (£	llion (fine of 22014-22034 21814-919) 217-292) 221-936)	ince) \$5564-3571 \$3544-355 \$356.26 \$356.66	(£20634-20714) (£2051g-206) (£206,582) (£807,186)
Krugrad 1s Krug 14 Krug 1/10 Krug Maplelas New Sov	\$38414-595 \$20312-20412 310313-10412 \$42-43 \$39414-38514 \$92-93	(£286 4-221 121163 ₄₋ 117 (£58 4-601 (£24-243 ₄₁	French 50 peo 5841 100 Co	a Sov 593-9 a Sov 593-9 a 20a \$82 8 s Mex. 5462 4 ir, Aust \$3711;	5 (£53-64) 414 (£47-48)41 1-489 1 ₂₁ £26514-2891 ₂ 1 1-877 (£21614-21814
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OTHER CURRENCIES

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Aug 20	£			Note Retes
argentina Paso. uatrallaDollar. uratrallaDollar. uratrallaDollar. uratrallaDollar. uratrallal. uratrallal. uwaitDinari. uwaitDinari.	1.7810-1.7840 329.77-330.77 8.3020-8.3205 8.3020-8.3205 116.821-122.51 146.40* 0.504-0.305 82.82.10 4.0505-4.0605 2.8770-2.3780 5.9840-5.9991 3.773-3.73	1.02451.0253 188.86.189.90 4,7160-4,7160 68.80.68.30 3.8950.5,9650 94.75 0.29000.0.8915 47.13-47.15 2.3303-2.3350 1.3608-1.3623 3.4390-3.4410 2.1470-2.1500	Norway	445.430 4.581g.4.721 11.33.11.68

1,741 I. 0,407 6,821	4,273 2,454 1. 9,623	444.0 255,0 103.9 1000.	11.925 6,850 2,791 26,86	3,810 9,074 0,845 8,131	4,700 2,700	8411. 1385, 564,0	2.153 1.237	82.05 47,13
	9.623							18,20
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1,460 0,482	3.363 1.184	\$79,3 123.0	10, 5.305	3.027 1.	3.941 1,302	2032. 567,6	1,805 0,595	68,81 22,73
0,370 0,722	0.809 1,773	94,47 184,2	2,537 4,945	0,758 1,467	1,942	513,0 1000.	0.458 0.893	17.46 84.03
0,809 2,122	1,884 3,207	306.2 541.)	5,530 14,53	1,677 4,400	2.185 5.728	1120. 2038.	1. 2.624	38,11 190

THE LINIT TRUST INFORMATION SERVICE

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(6% Writed swall)	bil. London Wall, ELZM STRQ. Amer. & Gen	91 84 -10 114 924 -10 115 874 -06 155 878 -06 155 878 -06 155 878 -06 155 818 -07 450 818 -07 855	General (Accum, Linits) (37,7 (47,7	255.5 -27 665 472.7 -51 665 57.84 -0.5 10.32 65.4 -0.6 10.32 125.4 -0.6 2852 125.4 -20 2852 125.4 -20 2852	Cuested Possis Energy Income 1997.8 Energy Inc. 199	
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Sovett (John) Salisbury House, 31, Firmous Chrys, 01-638 0478:0479 or 01-568 2771

	ECU central rates	Currency amounts against ECU August 20	% change from central rate	% change adjusted for divergence	Divergence
Belgian Franc	44,9704	45,2696	+0.67	+0.55	±1.5501
Danish Krons	8.23400	B-22587	-0.10	-0.22	+1.5430
German D-Mark	2.33379	2.35751	+1.02	+0.90	±1.0868
French Frenc	B.61387	5.59711	-D.25	-0.37	±1,3940
Dutch Guilder	2,57971	2.53307	+0.52	+0.40	± 1.5004
Irish Punt	0.697011	0,635119	-0.85	-0.37	-1.9691
Italian Line	1350.27	1328.44	- 1.62	-1.62	4.1369

Changes are for ECU, therefore positive change denotes a weak currency. Adjustment calculated by Financial Times.

CURRENCY MOVEMENTS			CURRENCY RATES			
Aug. 20	England	Morgan Guaranty Changes	August 30	Bank		Current Units
Sterling	91.5 120.2 89.0 118.0 94.7 82.0 123.4 147.0 116.9 73.8 53.5 132.1	-32.0 +10.8 -18.2 +26.7 -2.1 -2.1 -4.7 -2.0.1 +88.2 +24.1 -20.3 -38.6 +26.6	2tarling	0.95950 1.18682 15.3611 45.2696 8.22587 2.35731 2.30507 6.50711 1328.44 245.442 6.36490 106.362 5.86500 1.99674 66.5859		

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TS	CURRENCY RATES	Cannob Fund Managers Ltd. (2) 1. Oynuic Wey, Wembley, NA9 (NS. 61-9028876 Carnob Swith Trest
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	Canadian 5_14.26	1.18682	The state of the state of the state of
	Austria Sch. 634 18,8	8442 15,3611	Carr, Sebag Unit Trust Managers(a) 57/63, Princest St., Manchester 061-236 5685
		5073 45.2696 4512 8.22587	Carr, Sebag Cap. Fd 145.0 47.0 +0.1 3.11
	D mark 71e 2.5	3236, 2.35731	Carr, Sebag Cap. Fd. 1850 47 8 +0.1 3 51 Carr, Sebag Inc. Fd. 131 4 35.4 +0.2 8.00 Carr Sebag Far East n. 21.6 22.7 -0.6 1.88
		983 2,30507	Cent. Bd. of Fin. of Church of England
•		9948 6.50711 1.49 1328.44	77 Landen Wall, EC2N 10B. 01-588 1815
		389 245,442	10- E 15-27 700 M1 1 CM
	Norwgn, Kr.; 9 7.24	465 6.36490	Dep.Frd. Qur. May 31 113.79 12.57
	Spanish Pts. 8 121	.048 106,362 7041 5.86500	Charines Charities N/R Fund#
		187 1.99674	15. Mooreale, London, ECZ. 01-636 4171
	Greek Dr'ch 201 73,8	855 - 65.5859	Income July 30
	"5/SDR rets for Augus	19: 1.34324	
	W-24 100 111 1103		Charities Official Invest, Familia 77 London Wall, EC2N 1DR. 01-588 1815
			Accuss July 31 177.30 172.30
			Chieftain Trest Managers Ltd (a) (g)

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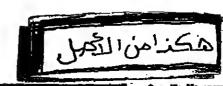
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chain Investment Management and Corner, Jersey 1604, 1745, | 12-13 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-14 | 12-1 | Strategic Metal Trust Mings. Ltd. | 14.00 | 14.00 | 15.40 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 | 15.10 |

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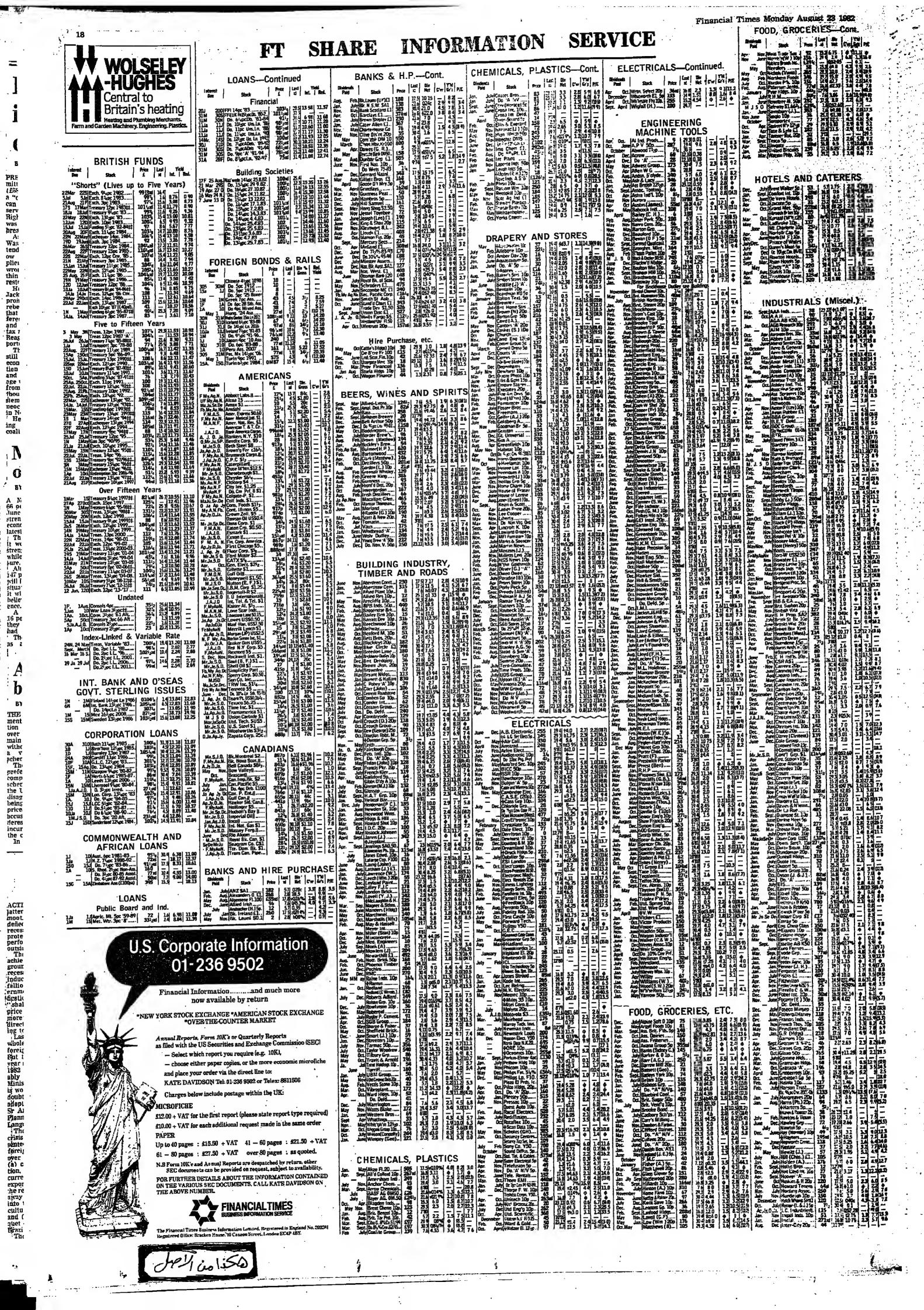
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Providence Capital International Ltd.

PO Bro 121, St Peter Port, Guerneys 0,881 267269

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Intl. Flower NOTES



The Nikko Securities Co., (Europe) Ltd. Nikko House, 17 Godliman Street, London, EC4 England Tel.: 248-9811 Telex: 884717

> MINES---Continued Central African

Australian

ACM 20c
Argosy Gold NL 25c
Bond Corp.
Bougainelle I Kna.
W CRA 50c
Carr Boyd 20c
Central Pacific
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Approximation of the state o

3-month Call Rates

Financial Times Monday August 23 1982 INDUSTRIALS—Continued LEISURE—Continued PROPERTY—Continued | Fire | Processor | Sept. | Decision | D MOTORS, AIRCRAFT TRADES Motors and Cycles Mr. Je. S. D. Gen. Mts. Units 122 98 012: 55 — 122 98 012 Commercial Vehicles Aug | E.R.F. (Hidgs.). 41 | 577 0.1 | - 0.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - 10.4 | - Components | Garages and Distributors | Sept. April Adams Gibbon | 93 | 13 | 4.13 | 1.8 | 6.4 | (1)7 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 Garages and Distributors Sept. Abercom RO.30 | 120 Mar. Angia Am. In. R1. | 5204, July Borbin Rand R.10c. | 363 Sept. Gartonis 'A' 50c | 250 Aug. Mestica RO.50 | 240 July OK Bazzans 50c | 790 ember | 8ex Tinelonis 'A' 50c | 230 July 5A. Bezzans 50c | 790 Mor. Tiger Oats R1... | 820 Roi. Unisec 20cs..... | 150 Murray Western 8.
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STEEL AND INCOMENSATION AND ADMINISTRATION AND ADMINISTRATION

PLANTATIONS

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FINANCIAL TIMES

Monday August 23 1982



TUC faces a stormy Congress

BY JOHN LLOYD, LABOUR EDITOR

THE TUC will be faced with an historic decision at its Congress in Brighton in two weeks' time: whether to maintain a 20-year relationship with government tbrough the National Economic Development Conncil, or sever it and return to an ontsider role of agitation and protest.

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Those in favour of severance in the minority on the General Courcil-will see their arguments strengthened by the broad hipt from Mr Norman Tebbit, Employment Secretary, during a lelevision interview yesterday that he may end grant-aid to the TUC for educa-

The other major debate, on which there appears certain to be a card vote, will be on the structure of the Ceneral Council itself. A proposal from the TUC to replace the system of election by trade group with one which gives automatic representation to leaders of unions with more than 100,000 members, will be hotly debated and may fall, reversing a deciaion of last year's Congress.

The anti-NEDC alliance is, as the final agenda for Congress shows, a broad one-stretching from Left-led unions such as the Fire Brigades Union and the white collsr engineering union Union Amalgamated Union of Engioeering Workers Tass, through the left-of-ceotre print union Sogat 82 to the right-led Iron and Steel Trade Confedera-

Support for continued participation comes from the Associa-tion of Scientific Technical and Managerial Staffs, in an amendment to Sogat 82's motion to pull out. ASTMS argues that continued involvement of the TUC in the NEDC and other deputy general secretary, said tripartite bodles is "of substantial value to working people in scious of the importance of both

BY JOHN LLOYD, LABOUR EDITOR

Technical and Managerial Staffs.

Foam fears

insulation

SALES of a wide range of bome

insulation products have slumped and companies using urea-formaldehyde (UF) foam

cavity wall insulation are fac-

ing serious financial problems

following a television news re-

port on allegations of possible

UF foam is the most widely

uhed material for cavity wall

insulation. The National Cavity Insulation Association

says that at least two companies

have ceased trading and many

others are seriously threatened

following the broadcast on

ITN's News at Ten on July 5.

tions that formaldehyde vapour if it escapes into the

atmosphere, can irritate the

The association rejects the

allegations and says that if used properly the product

should not cause householders any discomfort. "Urea-formalde-

hyde foam has been successfully used in this country for home insulation for the past 20 years," said an association

Companies using the foam

say that orders have dropped

by up to 75 per cent. Many com-

panies had to lay off installers.

director of Warmawall, which

installs a wide range of lusulation products, said that orders

at his company had fallen in the past two months by about

45 per cent across a wbole

More details, Page 6

range of products.

Mr Ken Johnson, managing

spokesman.

eves and respiratory tracts.

The report looked at allega-

By Andrew Taylor

health hazards.

and Mr Barrie Sherman, the relations, unlon's research director. The T

series of books on bow electronic arguing technology will cut the demand affiliated

television studio.

Tebbit hints at grant cut

MR NORMAN TEBBIT, the Employment Sccretary, yesterday said be was ennsidering ending government payments to the TUC for education of union officials.

Mr Tebbit, answering questions nn ITV a Face the Press, said the grant-aid had been cut from £1.8m last year tn £1.6m this year and was under further review. There would come a puint, be said, when it would seem odd that unions should not take state funds for ballnts because the money was tainted, but would continue to take money for education.

"It doesn't seem a terribiy ingical position and I'm not

still expected to narrowly carry

The issue of General Council

in the past year because of the

effect on the Council's political

composition, will remain an

open one up to the eve of

The left-led National Union

of Public Employees, and ASTMS, have been under great

pressure from other left-led

uoions to switch their votes to oppose the "automaticity"

principle, which both supported

last year. But in neither case has the executive or its delega-

Mr Tom Sawyer, Nupe's

The root of the trouble is

of programme series on indus-

try, including one on Industrial

The TUC thought it should

that its 100-plus unions organising

TV contract threatens union partnership

Paper nn trade union reform, to the published later this year, would propose the compulsory election by secret balint of "governing bodies" of unions. This would be one of a number of options to be debated before legislation was brought forward. He said the timetable for

anre I would want to leave

them in that difficult and

Mr Tebbit said the Creen

positinn

illogical definitely."

legislation was difficult to see. The legislative programme for next session did not. "absolutely preclude" bringing in a Bill, but was "pretty tight."

general"-2 position which is the major issues and we are atill open-minded about them. We'll take a decision nearer Congress in the light of all the structure, which has been an facts.' exceptionally contentious one Oth

Other issues likely to cause

debate include: • A motion from the National Graphical Association which seeks to prohibit the use of the TUCs fighting fund in meeting legal fees in cases arising from the employment legislation. This would reverse a decision taken at the TUC apecial conference earlier this

A motion from the construction section of the AUEW probibiting pay restraint discussions with any government is the subject of an amendment

commissioning editor, said at the weekend: "We made it

clear that there is no institu-

tional right of access to Channel 4. Ideas are accepted

or rejected on the basis of the

several

between Channel 4 executives and TUC officials, the TUC took

the point to the extent of em-

ploying a film production com-

pany, Black Rod, to develop a programme idea.

idea's worth.'

After

support for a "national economic assessment " embracing earnings and incomes carried nut by the TUC and a future Labour Government. If this motion and amendment cannot find a compromise then Congress could face a further major dehate on its attitude to incomes policy and its role in the planning process.

 The role of the press in reporting uoton affairs could become increasingly controversial if Congress carries an ASTMS amendment to a motion on press freedom tabled by the National Association of Theatrical, Television and Kine Employees. The amendment calls on the General Couocil to "establish criteria for monitoring journalists' reporting on union activities," calls for it to insist on the right of reply and to "take steps to ensure that bitter and mercenary journa-

union press facilities." If passed—and it may disappear in the compositing pro-cess-the definition of "hitter and mercenary" is likely to cause TUC staff some problems.

The Falklands conflict may he extended joto the Congress chamber through an amendment from the Electrical and Plumbing Trades Union which calls on Congress to place on record its deep appreciation to the British forces for their great victory in recovering the Falklands from Fascist aggression."

The amendment is to a motion from the Left-led furniture trades union, which imolicitly critices the Fslklands task force tarian point of view, for a single

by saying: "It is immoral and indefensible, from a humanifrom the Iron and Steel Trades' life to be lost in any senseless Confederation which affirms military campaign."

participant in the series, is Mr

Mr Sherman's decision was

conlentious one with his general secretary. Mr Jenkins.

general council, told bis research director that he was

disturbed by his decision to

participate and sald be was not

Mr Sherman, presently re

to continue with it.

leading member of the TUC

bis

Sberman.

Channel 4, however, has covering from an illness, bas

given a contract to another still to make up his mind.

Prior's plea over jobless figures rejected

too long.

AN APPEAL by Mr James Prior. Northern Ireland Secretary, for a change in govern-ment policy to reduce "intolerunemployment, was rejected yesterday by Mr Norman Tebbii. Employment Secretary. Mr Teobit admitted unemployment was had and that it ing community. Only a fortnight

But he added: "I have to emphasise there is no prospect by any means of engineering a sharp and satisfactory fall in unemployment which would not be very quickly reversed." Mr Tebbit hinted that figures

to be announced on Thursday lists cannot avail themselves of would show a further rise in that only the devaluation of the unemployment.

plateau, near the top." he said. day. bowever, a UK clearing
"The rate of increase has bank with plenty of internasinwed.

The Employment Secretary was sneaking on the Tyne Tees Television Setworked nro-gramme. Face the Press. This is the latest exchange in the battle between the Tory ' who want to see some reflation; and those who want to adhere to the Government's strict monetarist policies.

Mr Tebbit said there had been "It has been a very faltering and hesitant recovery not least hecause of what has happened

in the U.S. "But the levels of economic activity we see now are cerainly not on the way down. We are certainly not going

deener into recession." Mr Tebbit saw no reason for unemployment to stay at its present level. He was not a member of the "gloom and doom brigade" who believed there was going to he a large THE FUTURE of one of the threatened by a row which, this year, demurred. Ms Liz company, Croup Four, to make Labour movement's most famous ironically, concerns access to a forgan, a Channel 4 seulor the series. One of the directors commissioning editor, said at of the company, and a likely number of people unemployed permanently.

He stood by the speech he made at Glamis Castle when he vowed to prove the pessimists

A decrease in unemployment depended on an improvement in the world economy and in the competitiveness of Britisb industry.

There was more pressure vesterday for Government measures to restore confidence to Industry. Mr John Risk, chalrman of the Association of British Chambers of Commerce. wrote to Mr Leon Brittan, Chief Secretary to the Treasury, call-ing for further cuts in interest rates and "prudent fiscal action" to reduce industrial

The letter was intended as a rebuke, although it was not spelled out, tn Mr John Wakeham, Minister of State at the Treasury who has special responsibility for the private

The ABCC was angered by Mr Wakeham's criticism of the CBI's recent gloomy forecasts about industrial confidence and by his assertion that industry was largely to blame because of its lack of competiveness.

Weather

UK TODAY

COOL, abowers, clearing from

Sunny intervals, showers, beavy in E, drying out in W. Max 18C (64F).

Rest of England and Wales,

Cloudy, rain outbreaks, then

brighter with showers, followed by sunny periods in W.

Outlook: Dry, then changeable

WORLDWIDE

Cent and S England, S Wales

Scotland, N Ireland

Max 17C (63F).

Voters with a Calvinist view. Page 4

Lay-offs at BSC and Dunlop

hit sales of BY IAN RODGER

levision studio. the decision by Charmel 4, The partnership is that of Mr which begins broadcasting on

Clive Jenkins, general secretary November 2, to run a number of the Association of Scientific, of programme series on indus-

The two have produced a get the industrial relations slot.

for labour and create large-scale some 11m workers, made it the

unemployment and enforced most representative body. leisure. Cbannel 4. which began dis-

However, the partnership is cussions with the TUC early

tion tinplate mills in Wales Imports rose to 40 per cent of employing 5,500 people are home consumption in mid-1980 to be closed for the whole of as can makers such as Metal the Bank Holiday week because of a fall in orders and a buildup of stocks.

At the same time Dunlop is laying-off nearly 3,000 workers at its Fort Dunlop tyre factory on the outskirts of Birmingham for the week because of BL'a suspend Metro and Mini production next month for two weeks in addition to its oneweek holiday shutdown.

A spokesman for British Steel's timplate division said further production pauses would probably be required during the rest of the financial year at the Ebbw Vale, Trostre and Velindre works. This was partly because of a lack of demand

announced lay-offs which rise in imports.
together will affect 8,500
workers next week.
Three British Steel Corporatogether will affect steel strike in early 1980. as can makers such as Metal Box lost confidence in British

Steel. But last year the corporation pushed the importers' share down to about 20 per cent. Now imports of timplate and other steel products are on the increase again, attracted by the recovery of prices in the UK market. The corporation said its tinplate mills were running at about 10 per cent below their target output of 17,000 tonnes

per week and stocks were still

A decline in orders for most British Steel products bas al-ready caused production pauses at works in Yorkshire, Teesside and Scotland this summer. These bave usually been attached to holiday shutdowns.

TWO MORE hig employers have and partly because of a fresh UK last month was 21.3 per announced lay-offs which rise in imports. Cent lower than in July 1981, largely because of these production pauses and the bringing forward of holiday shutdowns from August to July to reduce Meanwhile Dunlop said its

planned stoppage was directly connected with the BL decision to suspend Metro and Mini production, which would cause a sudden fall-off in demand for tyres.

Employees at both Dunlop and British Steel will receive guaranteed payments during the week off.

Other component manufac-turers are studying the implications of BL'a shutdown decision. Lucas, the electrical group, said last night: "We shall be assesssary consulting the trade unions," ing the situation and if neces-

The management of Ferodo, which makes brake and clutch linings, is to examine the situa-

A new way to

In association with the Deutscher Auslandskassenverein (AKV) and using a computer link with the German Effektingiro. CEDEL can ensure a safe, fast, efficient and comprehensive clearing service for all DM Eurobondsopening up an important communication link between the .

and from German banks before 10.00 a.m. will be accepted for

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Founded by the market for the market.

from the UK canning industry Total steel production in the British resorts fight for tourists

BRITAIN'S seaside resorts, many auffering their worst postwar holiday season, are to make more vigorous attempts to sell themselves through high street information centres, Next year about 12 resorts—

participate in the English tours. Tourist Board's Instant Book deposi ing scheme, under which nocommission bookings can be travel agents and inland tourist tourist offices throughout Eng-

project offering hotel and guest brochure available from travel Many more are expected to way they book foreign package

tours. Their 10 per cent Algiers deposits will be the travel Amadm. agents' commission. Both echemes are supported made at the counters of town by the English Tourist Board and the British Resorts Association but the use of travel Next year about 12 resorts— In the Hollday UK scheme, agents, with the commission and more may join them before the resorts and participating involved, is still disliked and brochures are printed—will hotels and guest houses will rejected by many hotel and collaborate in a Holiday UK feature in a molti-resort guest house operators.

They believe they can still

bouse bolidaya through travel agents. People will be able depend on fairly full capacity to make their bookings in the during the peak summer season,

Schmidt warns of international trade war

BY JONATHAN CARR IN BONN

CHANCELLOR Helmut Schmidt of West Germany has warned that an international trade war could break out, destroying jobs and returning the western world to condltions similar to those of the early 1930s.

As examples of the danger, Herr Schmidt mentioned the differences between the U.S. and the European Community over steel, and the transatlantic discord over the EuropeanSoviet gas pipeline deal.

In a radio interview this weekend, the Chancellor said: "When we start to subject the free exchange of goods and services throughout the world to political conditions, then we contribute to the cut in jobs even though this is not our aim.

"That is wanton and irresponsible and it reminds me of the years 1931 and 1932," Herr Schmidt said, in

what are some of his strongest public comments to date on the trade issue.

The Chancellor displayed some impatience with his interviewer, who was keen to know Herr Schmidt's views on the economic outlook for West Germany and how the Govern-ment planned to deal with gaps already appearing in the federal budget for 1983.

Herr Schmidt agreed that the domestic economic growth outlook seemed less rosy than

it had done a couple of months ago, but that this was a problem which Germany ahared with many other countries.

He stressed that the plight of the whole world economy -including that of the Com-munist states—filled him with deep concern." This concern had not been affected by what he called the "excited babhling" in West Germany this summer about domestic ilis.

هكذامن التحمل

Running risks in Mexico present Mexican debt crisis ie observers, provides a vital yard- depositors and shareholders in

the time which it has taken to stick of bank solvency. dawn on the international bank-This principle may already have applied in the most recent would put a strain on the social ago, the Mexican Government fabric of society if it went on was looking forward to completion of a \$150m sbort-term Eurocredit on terms which top corporate borrowers would consider highly acceptable. performing status.

Mexico's debt servicing coats have been catching up with its oll revenues for the whole of the past year and early this month the country's President admitted mployment.

We are somewhere near the its foreign debt. The following tional exposure indicated that it had not seen fit to make any provision against sovereign risk in its interim figurea.

In technical terms, the sangfroid with which bankers greeted the collapse of the Mexican economy is perhaps understandable. Unlike AEG Telefunken, Mexico cannot cali default on public sector debt of an noturn in the economy in about \$600m is in any case January, but it had faltered. estimates, it would wipe out more than a third of the capital base of U.S. money-centre banks

With confidence in the banking system already strained by rash of private sector failures, it may be wise for bankers to keep their beads down when a Euromarket flag-ship runs aground. As it was, rumours about Mexican exposure were enough to take Manufacturers Hanover support the price of its own bond issues on Friday.

But there is a distinction etween retaining confidence in the banking system and shovel-ling the problems under the carpet. Under the moratorium formula proposed by Mexico, repayments of principal would he suspended but interest would

An alarming feature of the asset which.

THE LEX COLUMN

agreement on Polisb debt. Interest due is being capitalised into new debt which, technically at least, could allow patently doubtful loans to retain their 'At present, bank provisions

against Mexican debt are probably negligible. Given the size of the country's commitments and the gravity of its debt servicing problems, this is a little worrying. And, in the U.S. at least, there is increasing evidence that the balance sheet positions reported by banks do not fully reflect the true status of their loans.

The ratio of non-performing assets to total loans increased at all but one U.S. money centre bank last year, but the rises were generally modest. In every case, the ratio was markedly lower than at the end of 197 Continental Illinois, which reported a net loss in the second quarter, had a ratio roughly half the 1977 figure.

Stock markets, naturally enough, have made their own judgement. Prices of U.S. bank sbares, as measured by the Keefe, Bruyette and Woods. Index, have fallen 19 per cent since the beginning of this year and are now trading almost at record discounts relative to the market. In the UK, the FT-A Banks Index bas underperformed the FT-A All Share by 17 per cent since the end of December and now yields almost 60 per cent more than the market average.

In the inter-bank markets. several leading names have been obliged to pay a risk premium for short-term funds and presumably no one knows more about creditworthiness than a bank's nwn peers.

the banking system. It is also understandable that, at a time when banks find it imp to obtain new equity on resonable terms, their espital ratios should come under pressure. Equalty, however, banks can hope to defuse the consequences

of a serious failure only if investors and depositors believe that published information provides an accurate pasture of the state of play, and that the banks themselves are much to the Redland

Redland's coup in taking over Cawoods is underlined in the pro-forms figures included in the annual accounts. Net debt falls from 33 per cent of share-bolders' funds to 29 per cent, while earnings per share edge! a mere 2 per cent lower. On a current cost basis, indeed, earnings rise from 7.40 to 8.3p.

Central to the merger withmetic has been Rediand's low tax charge and its unrecover-able ACT" problem," which has been transformed into an opportunity in a way that may cause the ears of ambitious finance directors to prick up. Cawoods has held off a natural full 52 per cent tax charge by going into leasing in a big way and each year has had to expand its leasing book to roll the tax land's marginal tax rate is a mere 22 per cent, so the leasing book can now be run offand real cash realised—over the next three years far an extremely modest tax penalty.

Cawoods' venture into leasing thereby becomes far more profitable than the original sums indi-cated, while it is also safely off the leasing treadmill. The leased assets of £23m should produce net cash of £18m or so in Redland's hands, reducing continue to be paid. In this way, Mexican debt need not be cate-gorised as a non-performing tory agencies should do their Lombard North Central?

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